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DOMINION

DENTAL JOURNAL.

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Dr. James Branston Willmott.

We are quite certain that no one will be more surprised to see his counterfeit presentment in this Journal than Dr. Willmott himself; but we need not say that it is a very great pleasure to us to be able to give our readers the portrait of one who has no peer to-day as a real hard worker and representative dental educationalist in Ontario.

Dr. Willmott was born in Halton Co., Ontario, June 15th, 1837. His parents came to Canada from England when quite young. After living a few years in Toronto (then called Little York), they removed with their parents to the central part of Halton County, where they did, faithfully and well, their part in converting the wilderness into a fruitful field. Dr. Willmott had the good fortune to spend his early years on the farm: obtaining his education at the public school. In 1854-55 he was a student at Victoria College, intending to take the University Course in Arts, but he was prevented by failing health. In 1858 he entered the office of Dr. W. C. Adams, as a student of dentistry. In 1860 he began practising in the Town of Milton, near his birth-place. He allied himself with the Liberals in politics from profound conviction, and naturally made foes as well as friends, but no one ever doubted his honesty. He took an active interest in the affairs of the town, and was soon called to a position of trust. In 1863 he was appointed a Justice of the Peace. Besides minor offices he was for three years a member of the Municipal Council; two years of that time, Chairman of the Finance Committee. In 1870 he attended the Philadelphia Dental College, graduating in March 1871. Although a foreigner there, he was chosen by his classmates to deliver the Valedictory on "Commencement Day." In July, 1871, he removed to Toronto. In 1876 he was actively engaged in the movement, to place the Dental Profession of Ontario on a better footing, which resulted in the incorporation of the Profession as the Royal College of Dental Surgeons, of Ontario. In 1870 he was elected a member of the Board of Examiners, and, on the organization of the Board, its Secretary, and was re-elected each triennial election. In 1875, the dentists of Ontario met in convention and adopted a resolution requesting the Board to establish a Dental College in Toronto. The Board requested Dr. Willmott to undertake the organization of the College, associating with him L. Teskey, M.D., M.R.C.S. The first session opened in 1875, with Dr. Willmott as Senior Professor, occupying the Chair of Operative and Mehanical Dentistry, which position he continues to hold.

The Doctor is a devoted man in church work. Born of Methodist parents, he, in early life, became a member of the Methodist Church and has filled nearly every office open to a layman. Soon after settling in Toronto he connected himself with the Metropolitan church, and has been deeply interested in its prosperity. He now discharges the duties of Bible-class teacher, leader, trustee and treasurer of the Trust Board, besides being local treasurer of several important conversional funds; was a member of the Toronto Methodist Conferences in 1885-86, and of the General Conference of the Methodist Church, which met in Toronto, 1886. In September, 1864, he was married to Margaret Bowes, niece of the late J. G. Bowes, ex-Mayor of Toronto.

To Dr. Willmott's untiring energy the Profession of Ontario owe the proud affiliation with the University of Toronto, and the fact that the first degree of D.D.S. ever conferred in the British Empire was conferred at the April meeting last year. No man can occupy prominent positions in any profession, without being misjudged. Any man who succeeds in satisfying everybody may make up his mind that his work will not endure. Dr. Willmott has had to face many difficulties and some of the prejudices which are sure to meet every pioneer, but he has faithfully served his generation, and has given a stamp to dentistry in Ontario, which no honest practitioner would like removed.

Original Communications.

Combination Fillings and Eclectic Practice.

*By W. R. Patton, D.D.S., Cologne, Germany.

The following was read before the A.D.S. of Europe, in Baden-Baden, in 1878, and I am happy to say that the views expressed then, have worked their way slowly to the front, and to-day are known under the popular title of "Combination Fillings." We have arrived at this result through an enforced eclecticism in our treatment of teeth, by grasping at, and making use of every material offered to us, in our vain efforts to prevent decay, and preserve the organs confided to the care of our experience. Ten years is a fair time in which to decide the important query: Have we gained greater knowledge in this time to enable us to save more teeth than in 1879? Are more teeth saved, comparatively, to-day than formerly? Let each individual practitioner ask himself these questions, and answer them for his own satisfaction.

Every man knows where he has failed, so let him try again, and try something else than that in which he has failed, and find out new results as beneficial or otherwise, until he developes a natural eclectic knowledge of the manner and material he will use, according to the case. This can only take place with surety when the patient is a regular visitor, and one has time to note the permanency of the filling material used.

My experience of the last ten years, with, as a general rule, a bad class of teeth, is that the Combination-filling is the most permanent, and they have been as follows: Gold and amalgams (gold and cement), amalgam and cements, tin and amalgam. You will wonder at my not including tin and gold. The simple reason is, that after experimenting quite a time, I finally came to the conclusion, through results, that gold and amalgam had the same effects with a more perfect possibility of manipulation.

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*I merely wanted to demonstrate by reading this paper (written ten years ago), that the present system of combination fillings, which is being so much advocated now in American Dental Journals, is nothing new, but has been there before and the system followed for years here in Europe.

I hold the oxychloride cements, and the oxyphosphates, as the acme of filling material, if it were possible to prevent their erosion, and in so many cases chemical dissolution; but herein comes the eclectic point—combine! Why should a deep cavity be entirely filled with gold, or even amalgam? It has been, or is, my prevailing practice to fill in 95 cases with cements, and cap the cavities with gold, amalgams, or both combined.

No operator can make as close a connection with the walls of a cavity with any non-adherent material, as he can with the plastic advantages of cements. A child could learn it!

Let the operator use his skill in preparing that cavity, with as little loss of material as possible, and he will find the filling of it in this way, child's play. Let the cement be capped to defend it, and you have a constituent underneath which holds the parts together, and here let me add, that cements should not be used too doughy, but soft and sticky, so that they will stick to the walls of the cavity and adhere there. Let the same care be used as in the use of all gold above, and the result is better. Take a so-called shell, merely the enamel coating so to say, standing as a ruin, carefully scrape the soft layers of dentine away from the interior, and plaster it up and around the walls with quite soft cement; let it dry and harden, then repeat, and leave enough room in the centre for anchorage, and carefully take away the cement from the margins and root-edges, and cap nicely over with *soft* amalgam. I say *soft* expressly. Soft amalgam does not, in my experience, contract as much as *dry* or hard-pressed. The shell will not discolor, and the work will do good duty for even longer than the most sanguine could expect.

The combination of gold and amalgam is, according to my experience, one of the best filling materials we can resort to. The combine appears to benefit each other in a preservative sense. Dentine, under this combined material, does not give way, as in the use of each separately; if this depends on a galvanic or electro-development, I leave to science to determine. I can only vouch for resulting facts, and those benefits. My principle is to fill with gold wherever that part of the tooth is visible, to evade darkness of color, and fill in the rest with amalgams, of qualities according to case. For example, a proximate-cavity in a central incisor—The labial surface from underneath with gold and the lingual with amalgam; when polished later, you have the appearance of a gold-filling from the superior side, and the inferior dark but invisible.

The same treatment for bicuspids. The buccal surfaces with gold, and the lingual with the gum margin, with amalgams. If the teeth are hard, use hard amalgams, containing (or supposed to) more silver and some gold. If the teeth are of a soft character, then amalgams of tin and copper amalgam. I could enumerate innumerable cases where combinations are of value, but I have taken up too much of your time, and will close with the hope of hearing later of still greater development in this direction, when a *false shame* has been conquered, and practitioners will own up to having *patched up their own failures*, and even by that means preserved teeth, comparatively, for the suffering patient.

When the time arrives when Dental magazine recorders will give us their real daily practice, and not rush to press with the *extraordinary*, I fancy more benefits will be gained by our fraternity at large, than that of competing with the yarns of the angler, whose reputation is so unenviable.

Failure leads to success, and nothing succeeds like the latter.

"Among the disadvantages of a young man of our profession, when writing his ideas regarding any of the many subjects inviting close attention and subsequent thought, stands predominant his fear of being looked upon as conceited, and his crude observations be lost on his hearers, under the damping verdict of inexperience. In this connection I must plead guilty to a feeling of depression when noting the few remarks I have to make on this subject—and which I have consequently made as concise and unobtrusive as possible—through the fear of being gobbled up by some distinguished scientist in dental theory, to detail the conditions of the fluids in mouths where I would fill teeth in a certain way; whether the exciting causes of caries in these cases might be *chemical*, *vital*, *chemico-vital*, *parasitic-electric or galvanic-electric*, etc., which is exactly what I am thoroughly incapable of doing, and when I read—to quote the language of a prominent writer, that "the pulp-vessels should be charged with negative electricity, the normal pulp with positive electricity, but, in a pathological state, the surface of the dentine as well as the roots would be charged with negative electricity," etc., my nervous system receives an electric shock, which pervades me with an indescribable feeling of meanness when I recognize that *I* cannot discover the exact state of the tooth I am to operate on, in this connection, so as to arrive at that great goal—the *infallible filling*.

The writers on the *electro-chemical action*, and all the other theories, having discovered the enemy, shouted—and how have they shouted, *an alarm!*—do not retire and arrange as practicable a specific defence as possible in the first place, and then, secondly, an attack against the encroaching foe, but are so entirely dismayed at their own discovery, which they so diligently impart, nevertheless, that confusion arose in the main body to which they belong. This, in its turn, panic-stricken as it were, immediately divides into factions of extremists. Thus, weathering the general defence—and we all know that a party divided in itself must fall—such appears to be the state of affairs amongst us since an eminent practitioner and others discovered the undermining enemy and retiring in dismay—returned, bearing their horns before the hitherto strength of dental practice, expecting the walls of the most progressive specialty of the century—walls founded in gold through educated ability—to crumble away as the walls of biblical history, in order to be built anew in plastic materials.

Those who run into one extreme are accountable for the folly of those who run into a contrary—so the printed words of Dr. Flagg, in vol. 20 of the *Dental Cosmos*, 1878, where he states in italics:—"I have not used one sheet of gold-foil for almost two years, and have sailed for the last seven months with 'no gold used' on my appointment cards"—is an extreme statement from a gentleman of his capacity and position, liable to have caused, and to still cause, an indefinite amount of corruption in the core of our profession, particularly among younger members, who look up to and expect to learn maxims of wisdom from men of such experience.

We must always appreciate the electro-chemical theory, if only that it has drawn the attention and skill of the "gold-or-nothing" operator to the value of filling teeth with something other than gold. The relative work of the experiments made to demonstrate the electro-chemical theory is yet far from being open to objection. It may be conducive to dental science to experiment in the laboratory, but I do not think such experiments are conclusive, when we consider the innumerable changes in the fluids of a living organization, besides the changes in temperature in the oral cavity (F. 98·6° natural), which cannot be directly recognized in every case so as to diagnose the best practical result. I believe it impossible to obtain the same conditions out of the mouth as in it; the destructive agents used out of the mouth always affect the enamel most and in the mouth affect it least. When distinct rules are given (if that will ever be possible) through such experiments, to repel the ravages so easily discovered, but not more easily combated to-day than previously, then will I become also an extremist, and lowering my flag to Dr. Flagg, shout: "*Le roi est mort—vive le roi!*"

Any man with ordinary common-sense (and this kind of sense is anything but a common virtue) has filled and fills teeth in his attempts to resist decay, in the same manner as the original "new departure system," though he does not throw such an important filling-material as gold is in educated hands, at the same time overboard—thousands of teeth can be shown, most effectually resisting further decay through gold, and thousands also can be shown where other materials, plastic, etc., are effectually doing the same purpose.

The total condemnation of one material or another can only be founded on bigoted error. Gold, in *certain* places, is the best of filling materials; amalgam and other plastic preparations, in certain cases, are as "good as gold;" whereas, in other certain cases, amalgam and other plastics are of use to the dentist, where gold is a "delusion and a snare," and still in other varieties the plastic is better, in fact the best of all materials, but in connection with gold, so that we see without the one or the other we are literally nowhere, and where that is—as Dr. Atkinson would say—"only God-Almighty knows!"

The prevailing eulogism, "he is a first-class operator," refers only to a man's capacity to use gold, and has kept hundreds of first-class men, through the exclusive mechanical use of this material, from devoting their energies to a development of other substances of as great a value to dental science—besides evading the mental strain and physical exhaustion suffered by the patients, and especially by the operators themselves.

Speaking with a N. Y. dentist, of reputation as a conscientious operator—who was travelling to build up a broken-down constitution—in a conversation on this subject, he replied to one of my queries, "Why am I done up, simply by the wear and tear of a first-class operation—by putting in difficult fillings in inaccessible places?" As to my query, "Why," he replied, "I must keep up my reputation!" I may have observed that he, in addition, made a remark to the effect that he had "conscientious doubts if the work he gave so much labor to could not have been done sooner and better otherwise."

Has not this same idea, carried out, been for some years the cause of keeping active minds from other means and remedies, which could have allayed much physicial suffering to our patients, even under mere manipulation, and kept the operators themselves from a more extended and accurate observation of other filling materials? The tendency of this paper is not in any way that of gold *versus* plastic; but I cannot evade putting the question, "Have *plastic* fillings had the same trial, *in all cases*, in the same manner as gold? Would not plastic fillings probably show as good an average of *benefit given*, if their use was not always to a great extent considered *derogatory*, and principally used when we could not use anything else?" If certain plastic fillings are resorted to for frail and diseased organs, in order to save them, can we not logically reason that they will save organs that are otherwise, comparatively speaking, strong and hardy?

If we take the two most prominent filling materials now in general use, Gold *versus* Amalgam, the former used through educated hands, the latter through uneducated use, then this difference, notwithstanding, and principally on account of the want of a general educated use of both; I have no hesitation in saying, that, as many or more teeth, though often unsightly, have been preserved to their owners through amalgam than gold.

Is it necessary that patients should regard such plastic fillings as *inferior*, and that an operator fills a cavity with the poor (?) article in order to *save* it, at the same time informing his patient that it is "not worth gold," and time shows the frail organ still on duty; while a neighboring effort that caused much more patience and energy to deck in glittering garment of gold, must be patched up, renewed, restored, or something of that sort. And with what? Generally with amalgam—the poor cinderella of filling material! Is it not true that, for the proud privilege of being first-class and doing everything in gold, labor and time are sacrificed when certain definite kinds of teeth, and certain definite cavities in teeth, could be better manipulated with another material.

Inefficiency and unskilfulness need not be attributed to those inserting plastic fillings, for where the more conscientious effort is smiled at, the more successful will be the results attained. When and where to fill, what to use and how to use it, are the principal points demanding judgment of an educated dentist. Extremes have ever proved valueless, but by listening to the arguments of both sides, he, by civil observation, proves the safest man, who accomplishes solid enduring work by an eclectic use of that which is good, or seems good, to his understanding.

After these few, and I hope, concise remarks, I will state where, in my opinion, there are places where plastic work is superior to gold as filling material; under plastic, I consider amalgams, gutta-percha, pure; and in its various combinations with other substances to harden it; Paul, Sons & Rastaing's cements first, and those under other names secondly.

About the first opportunity I would find when I would look around and think of what I could best use for my purpose, and in in the hope of doing something permanent towards a probable successful result, would be, when I have cavities to fill which are *difficult of access* (here the cavities were demonstrated on the blackboard). According to case, amalgam and gutta-percha. Then dilapidated teeth "not worth gold?" Cement here is nearly useless, most every one understanding what such cases mean.

Young patients with perceptibly poor constitutions—teeth frail and badly decayed: gold and amalgam, tin and amlagam, gutta-percha. Teeth of defective tissue, called "chalky": gold and amalgam, tin and gold (amalgam in combination with tin, which latter should be laterally pressed to the walls of the cavity between the amalgam and dentine).

The deciduous teeth, when amalgams, gutta-perchas and cements are mostly preferable to gold.

Soft teeth, where one simply diagnoses that fillings of any kind are least likely to preserve, do. do.

Large-crown cavities, with only enamel walls standing, fill with cements and capped with gold, tin, or amalgam.

Cavities in teeth far below the margin of the gums, in every case with amalgam; if portions protude over margin and look dark, cut away subsequently (when hard) and replace top portions in gold.

Woman's teeth, during pregnancy, on account of softening of substance and later replacement.

Teeth of nervous persons of weak organization, incapable of supporting any lengthened operation.

Those cavities on the necks of teeth, where plates having been upheld by pressure of margins or thorough clasps, we find enamel dissolved, and underlying dentine generally softened to a gelatinous condition: amalgam and gold, and amalgam and tin and gold.

Front teeth, for sake of appearance, where too large fillings in gold, or any other metal, serve to draw the attention of the public to the defective state, inlaid portions of porcelain teeth, Rastaing & Doulson cements, Davis' gold (a gold formerly used, of a very light straw color); and finally, I would fill with amalgam and the other plastic materials, where I thought they could be of use, to suit the cavities in those teeth—abounding so numerously in the mouths of "poverty;" in those cases, gentlemen, good deeds in amalgam are better than gold, when you have no time to afford the latter for sympathetic charity.

These are a few of the conditions and places where I conscientiously would prefer plastic fillings as superior to gold. Where one evades the necessity of taxing the patient and himself to a complete exhaustion, through operations in gold of unusual magnitude and extreme length, and which often finally leave a doubt—a cringing doubt in the minds of conscientious men, if he has really benefitted his patients in accordance with the Hercules-like manipulation necessary to such work.

The dentist may earn his bread by the sweat of his brow, but I do not think he is justified in making his patient the victim of unnecessary suffering, and then sweat his purse for the sweating undergone by both.

If the teeth of civilization are yearly degenerating, then more means must be sought, for resisting their decay, than the sole mechanical use by one material, viz.: gold, applied in all cases and conditions.

If we aim to relieve suffering and prolong the use of organs necessary to a healthy being, then searching for cause and observing effect, we must break the bands of established usage and teaching and treading our way over new fields of extended and accurate observation, we may arrive at a goal, where we will find that our efforts in "plastic" models for the great monument "Preseveration," may later be petrified into the permanent marble of success.

Choice of Material for Filling.

By W. A. Brownlee, L.D.S.

This subject is one full of interest to the operator and importance to the patient. In considering the subject we must take it for granted that the patient has put himself into our hands for treatment: expecting the dentist to perform such operations as are necessary, with the greatest skill, and by the use of the best filling material.

In general practice our hands are often fettered by either the economy or choice of the patient, and to this we may attribute many failures in filling which might have been obviated had the choice of material been left to the superior knowledge of the dentist.

We have no filling material to which we can apply the name "Perfect," and, therefore, we must select from such as we have, the most suitable for any given case, or particular class of teeth, considering also the condition of the cavity to be filled.

To merit the name "Perfect," a filling material should be the same color as the tooth to be filled, a noncondutor of thermal changes, easy to introduce, easily adapted to the walls of the cavity, capable of resisting the dissolving power of the fluids of the mouth, capable of bearing the same amount of pressure as tooth tissue in the same position, should adhere tenaciously to the walls of the cavity and not shrink, should not be liable to cause any physical disturbance, and capable of taking a high polish.

In order to choose a filling material we must first ascertain the condition of the tooth to be filled, the position of the cavity, and conditions of the fluids of the mouth.

Teeth are either temporary or permanent, and all teeth of either sets may be included in two classes: 1st, hard, dense, or well calcified teeth; 2nd, soft teeth: which will include such as are deficient either in lime salts or animal matter. The deficiency in the latter class is due to causes which prevent the deposit of the required amount of inorganic matter in the teeth during their development, or its proper assimilation. These causes are various, the principal of which are disease, improper food, and hereditary predisposition. The advisability of filling children's teeth cannot be disputed as the fact is clear, that if the teeth are extracted before the proper time, the bones do not develop as they should and the permanent teeth will be more or less crowded, a condition which renders them more liable to decay.

All treatment should be pursued with a knowledge of the predisposing cause. It is impossible to remove the predisposing cause, but remove the exciting cause as far as possible. The object of filling is to restore the continuity of the protective covering of the tooth, we cannot improve the condition of the surrounding tissue, therefore it is just as liable to decay as before.

In filling temporary teeth it is not advisable to use gold, as the plastic fillings are preferable for two reasons: they are more quickly introduced, therefore less tedious to the little patient, and will preserve the teeth quite long enough to allow nature, in her ordinary course, to replace them with permanent substitutes.

If decay begins at so late a period that the permanent tooth will replace it before the cavity is large enough to give trouble, I think it would be judicious to leave it without filling. If, however, it is thought well to fill the tooth, we are to be governed by the position of the tooth and condition of the oral fluids.

If the cavity is in the incisors or mesial surface of the cuspid, the position of the cavity, such as will protect it from the friction of mastication, or where there is marked acidity of the fluids of the mouth, I would advise the use of gutta percha.

Where the filling is exposed, or fluids of the mouth alkaline or neutral, use oxyphosphate cement as it is harder and will bear more friction than gutta percha. In temporary molars if the cavity is small I would use amalgam, unless the pulp is nearly exposed —then use oxyphosphate cement, and, if found necessary, the surface of the filling can be removed, retaining-points made and the cavity filled with amalgam.

It is necessary to enumerate here only the few filling materials in general use, viz.: gold, amalgam, tin, gutta percha, and the oxyphosphate and oxychloride cements. Other varieties of material have been used but not with enough success to merit a place among those in constant use. In the majority of cases gold is the best filling material. The various forms in which gold has been used have given way almost entirely to cohesive foil. Soft gold, by reason of its pliability, can, perhaps, be more closely adapted to the walls of the cavity than any other form, but its difficult manipulation has given cohesive gold, which is more easily worked, the preference.

The failures in gold fillings are generally caused by want of proper adaption of gold to the walls of the cavity, thereby allowing leakage, or by jarring or chipping of the edges of the cavity by the plugger, or by improper finish on the filling; in the latter case it may either overlap the edge of the cavity or be deficient, exposing the edge of the tooth tissue, either of which would be a source of danger. If the gold is not properly condensed it is liable to scale off and thus expose the tooth substance.

Some practitioners are too apt to treat all cases alike, thereby multiplying the number of failures. In a case where gold would be the best filling, if properly introduced, under existing circumstances, it might prove useless in preserving the tooth. Take, for instance, a cavity on the distal surface of a second superior molar, in that position it would be next to impossible to make a perfect gold filling while a good amalgam filling could be inserted successfully. In this instance I would say, use amalgam, a good amalgam being better than a bad gold one.

Another position in which I would not recommend gold is on the buccal surface of inferior molars, when spreading, superficial caries exists, as it would require frequent renewing. Here I would recommend Hill's stopping or some other preparation of gutta percha.

Under the following circumstances I would recommend gold: Where the patient is over fifteen years of age, the composition of the tooth hard and dense, the organic and inorganic constituents well proportioned, and the cavity easy of access so that a compact filling can be inserted and properly finished off.

In contour filling cohesive gold is the only material which can be used successfully. The best manner in which to prepare gold to make a strong filling, is to fold the leaf fan-shaped.

Gold has no therapeutical action on tooth tissue, therefore will not cause nature to exert any recuperative power, but acts simply as a mechanical plug by which the injurious agents are excluded.

Some operators advocate the lining of cavities with soft foil previous to filling with cohesive gold; this cannot always be carried into practice as the shape of the cavity will not permit it. The objection of this style of work is that no union takes place between the soft and cohesive gold, and therefore the mass of cohesive gold in the centre of the filling is liable to be displaced.

Practically, amalgam stands next to gold as a filling material, being sufficiently hard to bear the pressure of mastification, it is insoluable, easily inserted and easily adapted to the walls of the cavity. Where the patient is very susceptible to the influence of mercury, amalgam should not be used, but these cases are indeed rare. The influence of so small a quantity of mercury at such a low temperature would have little effect, because a temperature of five hundred degrees is required to produce any injurious mercurial salt.

In using amalgam it should contain such proportions of metals as to prevent it from shrinking. A good percentage of tin will prevent this, the presence of a large proportion of tin makes the filling less brittle which is rather an advantage, as it renders it less liable to crevasse. A good filling material is obtained from forty-nine parts tin and fifty-one of silver, a small portion of gold gives to it a finer grain. Crevassing is a serious fault of amalgam, especially where the filling is required to bear much pressure. Take for instance an approximal cavity in a molar or bicuspid, the pressure of mastification chips the brittle edge off the filling, leaving a crevice between the tooth tissue and filling which is injurious in two ways; first, matters such as particles of food and the like, being pressed between the tooth and filling tend to force the filling out of place, second, these particles of food remain there and exert an evil influence by being decomposed, forming acid which renews the decay, this latter objection will apply to any amalgam filling which has to bear pressure, the former only to appromixal fillings. Gold has not this objection, being malleable.

Another great objection to amalgam is its tendency to discolor. Any filling which contains mercury will discolor in the mouth, therfore is not suitable for use in any cavity where the filling is exposed to view, as for example in the incisors or anterior surface of cuspids. It not only oxidizes on the external surface but also on the surface, which is in contact with the tooth substance, and will cause a dark appearance on the surface where the walls of the cavity are thin and semi-transparent. The formation of oxide beneath the filling in some cases slightly raises the filling from its place so that the surface is higher than the surface of the tooth tissue surrounding it. This is apt to make the filling leak, yet it is possible that this oxidation retards the process of decay by its presence. When new, the color of amalgam is less objectionable than that of any other material with which teeth are filled, and when subject to constant friction by mastication presents a smooth, bright surface for a long time. Amalgam should be used immediately after it is mixed for, if disturbed after crystalization begins, it is likely to become more or less friable. Too much mercury or too little will also injure the properties of amalgam.

Amalgam can be used to advantage in some cases as a foundation for gold fillings ; for example, a cavity which extends so far below the margin of the gum as to make it impossible to apply the rubber dam successfully the cavity may be filled nearly to the margin of the gum with amalgam, allowing it to set, apply the rubber dam, and complete the operation with gold.

I would conclude then, that amalgam would be preferable to gold in the following cases :—In back teeth, the crowns of which are too frail to stand the pressure necessary for the insertion of gold, in cavities where it is impossible to properly consolidate and finish off a gold filling ; for example, the posterior surface of a second or third molar, in molars of the temporary set and, as above suggested, as a foundation for gold in certain cases.

Next in order, we will mention tin, which is not very extensively used on account of the difficulty of inserting it. It is manipulated in the same manner as soft gold, therefore considering the difficulty of inserting it, the very slight difference in cost of the quantity of material required for a filling, and the fact that it becomes black where the fluids of the mouth are vitiated, gold is preferable, for where you can insert tin you can insert gold.

It is better than amalgam to preserve a tooth ; on account of its malleability it will not crevasse or chip at the edges, it will therefore remain in contact with the walls of the cavity if properly introduced.

Gutta percha has a number of good qualities, although not hard enough to bear the friction of mastication, yet in protected cavities, or those where no great amount of pressure comes on the filling, gutta percha will give years of service. It is especially useful in the teeth of children under the age of fourteen years ; under this age it is not advisable to use gold as the teeth are not thoroughly developed, the pulp larger and the proportion of inorganic matter less than in teeth of adults. The pulp being larger a metal filling, by reason of its great conducting properties, is liable to cause death of the pulp. During the constitutional changes of puberty the mucous secretions are markedly acid, and from that cause a recurrence of decay is liable to take place; at that period the teeth are also very sensitive. For these reasons gutta percha is a valuable filling material at and before that period until the composition of the teeth is determined and the fluids of the mouth have returned to their normal state.

It is urged as an objection to gutta percha that it shrinks from the walls of the cavity, but if the cavity be kept perfectly dry and the walls are first coated with a solution of gutta percha in chloroform and the filling then introduced without too much heat and kept under pressure until it cools all the shrinkage will be about counterbalanced by the heat and moisture of the mouth.

It is well adapted to buccal cavities in second and third molars where there is a tendency to superficial decay, as the filling must be frequently removed. Approximal cavities which can be easily approached from the side instead of the crown are suitable cases for treatment with gutta percha; but here there is one objection to its use; when severe pressure comes on the crown over the filling, if there is only a thin portion of tooth tissue intervening, it will give way as the gutta percha is not sufficiently hard to afford support, so this treatment is only admissible where the cavity is a considerable distance from the crown.

Cement filling has of late years taken an important place among filling materials and presents many useful properties, but has one fault which entirely destroys its worth as a permanent stopping, that is its solubility in the fluids of the mouth. It is especially soluble if there be a small amount of acid present, and acid is found in nearly every mouth from some source or other; if the saliva be not acid itself, there are other sources from which the destructive agent may come, such as acids taken with food or medicine, or formed by the decomposition of particles of food left between the teeth. If the fluids of the mouth were always alkaline then cement fillings would give efficient service for a length of time, but although the saliva is slightly alkaline when first secreted it becomes neutral and frequently acid when mixed with the secretion of the mucous glands of the mouth, and its influence is constant upon the filling. The decay of the teeth is of itself a proof of the presence of acid, for decay in its first stages consists in a decalcification of the hard tissues of the teeth by acids present in the mouth.

The cements are very valuable as capping or nonconductors in large cavities under metallic fillings where the pulp is nearly or altogether exposed, because the salts of a metal are not as good conductors of heat and cold as the metals themselves. In the choice of a cement for this purpose one should be sought which will not produce too much pain and discomfort to the patient. If the pulp is exposed it is well to cover the exposed part with oxide of zinc, mixed into a soft putty-like mass with creasote, then apply the cement in a consistency which will require little or no pressure and leave unmolested until thoroughly set. A filling made of oxide of zinc and powdered silica mixed with phosphoric acid is less irritating than one mixed with zinc chloride and makes equally as good cement for lining cavities.

Tooth tissue will not decay under oxychloride filling, and even partially decayed dentine will become hard and serve for many years when left over a nearly exposed pulp if covered with this cement. The ingredients of the cement act as both stimulant and antiseptic, inducing in some cases better organization in the living tissues to which it is applied. It is the only filling material that adheres to the wall of the cavity and will therefore be more likely to exclude moisture, but when the filling becomes dissolved away from the edge of the cavity it will allow recurrence of decay just the same as any other filling, when not in contact with the wall of the cavity. Where the operator intends to insert a metallic filling in a tooth of soft composition it is well to line the cavity with oxychloride or other cement, allowing it to come as near to the edge as possible without being exposed, make the retaining grooves in the cement, and fill with gold or amalgam, whichever is most suitable to the case.

This method will give the advantages of a hard surface with the preservative influence of the cement against the walls of the cavity.

The good qualities of oxychloride or oxyphosphate filling may be enumerated as follows:—It is a non-conductor, it adheres to the walls of the cavity, therefore excludes moisture; it has a beneficial therapeutical action on tooth tissue with which it is in contact, it is easily introduced and easily adapted to the walls of the cavity, and it is very near the color of the teeth.

It may be used to advantage in the following cases:—For filling nerve canals and pulp chambers, for lining cavities in sensitive teeth, for capping exposed pulps, for temporary or test fillings, for filling in temporary incisors and cuspids, and also in teeth of soft texture; in the latter case it will require to be frequently removed. It will also prove servicable where the tooth is so frail that it will not bear the pressure necessary for the insertion of gold filling.

Although there is much in the choice of a material for any given case, yet, many failures occur from lack of skilful manipulation of that material, either in its preparation or insertion; but an operator who is capable of choosing the filling material best adapted to a certain case is also likely to be capable of properly preparing the cavity and manipulating the chosen material.

Cantharides Destruction.

By T. Dala, Newfoundland.

I have never used arsenic for destroying the pulp in deciduous teeth, because one is never sure of the condition of the foramina at the apex. For a long time I gave nitrous oxide and destroyed it under its influence; then I used repeated applications of carbolic acid. But to Prof. E. T. Darly, of Philadelphia, I was indebted for suggesting the use of Spanish flies, or cantharides, and I can recommend it after nine years' experience. Moisten a pellet of cotton with carbolic acid, and then dip it into the powdered cantharides—not the tincture, generally two applications may be necessary. After removing the pulp, and you desire to preserve the tooth for a short time, place a little dish of lead punctured with a hole in the top, leaving a needle in it, to be withdrawn after filling with amalgam. It is not necessary to treat the root canals of deciduous teeth with the same care as those of the permanent; and my experience with the cantharides has been that they never need it as if arsenic had been used.

The Dental Profession.

Mr. Chairman and Gentlemen:

One of the most memorable and important interviews which ever took place between two individuals in this world, was held on a raft in the middle of the River Nieman, at the little town of Tilsit, in Prussia.

At one o'clock precisely, on the 25th day of June, 1807, boats put off from opposite sides of the stream and rowed rapidly towards the raft. Out of each boat stepped a single individual and the both met in a small wooden apartment in the middle of the raft, while cannon thundred from either shore and the shouts of armies drawn up on both banks, drowned the roar of artillery. The two persons were the Emperors Napoleon and Alexander, and the history of the time tells us that they had met to "arrange the destinies of mankind."

The hastily constructed raft on which the interview took place, will be remembered as long as the story of great conquests and mighty revolutions can interest the mind of man.

The conference lasted but two hours; it was entirely private between two Emperors and yet it was fraught with momentous consequences to millions. It was one of the great crises in human history, when the currents of power that govern the nations take new directions and break over the bounds and barriers of ages.

Fifty years ago this present autumn, in the City of Baltimore, was held another conference of far more momentous and lasting importance to mankind, than that between Napoleon and Alexander. It was not watched with larger expectancy by great armies; it was not hailed by the thunder of cannon and the shouts of applauding thousands; it was not arranged beforehand by keen and watchful agents, guarding the interests and safety of those who were to meet. It was at night—in a private house and was brought about by the mingled anxiety and desire of a few earnest men to know more of the truths which had so fired their imagination and charmed their senses. And yet from that humble night conference between Dr. Chapin A. Harris and his associates, there have gone forth beams of light and hopes of relief to the ends of the earth.

The plans formed by Napoleon and Alexander at Tilsit, were reversed and defeated long ago, and it is impossible to trace their influence in the conditions of European nations to-day, while from the plans and purposes of that other conference, have gone forth blessings which have already changed the condition and cheered the hearts of millions and have more influence in the world to-day than ever before, and are destined to go on increasing in power and influence until they shall be received as the harbinger of comfort and joy to every nation under heaven.

It is now plain of recognition, that the great science of medicine and surgery, wrestling with the intricate and unsolved problems of the human system, failed at the opportune time to comprehend the importance which attaches to the care and preservation of the teeth, as it utterly refused to make provision for their study or the treatment of their diseases.

Respectable and medically-educated dentists, seeking admission to their associations, were refused because they were *Dentists*, and their requests for educational facilities, whereby those desiring to devote their energies to this department, spurned with contempt, as being beneath the dignity of a medical staff.

Dentistry as a specialty of Medicine was completely ignored by them.

Entire courses of lectures were delivered in their colleges, without the promulgation of a rational theory on the cause, effect. or treatment of a single pathological condition of the teeth. That they were parts of the human organism, complicated in structure and relations, more subject to diseases than other organs, in intimate association with the centres of life, important agents in inciting disease in other parts, leading not infrequently to intense suffering and the abridgment of human life, were matters receiving no consideration.

Standard Medical works taught theories exploded, and application of remedies abandoned by Dentists long before. Every day evidence was accumulating, showing the unfitness, the inabiliy of Medical schools to furnish the Dental students the information which should fit them for the practice of Dentistry. How, then should the work of education be accomplished?

The establishment of independent schools seemed alone to offer a satisfactory answer, and with a full appreciation of these facts, a few self-denying, resolute men, led by Dr. Harris—and as a result of that humble night conference—organized, in the City of Baltimore, in 1839, the first Dental College in the world.

From that humble beginning—that little cloud which, in 1839, seemed scarcely so large as a man's hand—have come benigned influences, broadening and expanding, until to-day there is not a civilized nation of the earth where their benefits are not seen and felt.

Then, Dentistry as a whole scarcely took rank among the honorable trades; to-day it is justly classed among the honorable professions. *Then*, its practitioners were craftsmen; to-day they are gentlemen of culture and scientific attainments. *Then*, it was a conglomerate and unorganized mass of men, each seeking to conceal his own ignorance; to-day it is a body of generous men, organized into societies for mutual improvement. *Then*, it was scorned by the Medical profession and unnoticed by the world; to-day it is treated with consideration and respect by the whole Medical fraternity and accorded its justly important position as a department of Medicine by the broader cultured and more conspicuous of all the professions. *Then*, it was composed of men schooled only in secret formulæ and mysterious arts; to-day it is composed of men schooled in science and trained in the arts of benefitting mankind. *Then*, it was without resources or appliances; to-day it is possessed of large resources, and is rich in the most ingenious and appropriate appliances.

Then, it was without literature, neither had it authority; to-day it has a respectable and rapidly-increasing literature and authority as clear and fully pronounced as are the same in Medicine, Law or Theology. *Then*, it was full of envyings, jealousies and backbitings; to-day its code of ethics is as dignified and exacting, and the intercourse among its members as unselfish and genial, as the same in any other profession.

These, gentlemen, are a few of the contrasts between 1839 and now; and these are the things that have been wrought out in Dentistry, by the spirit infused into it at that humble conference fifty years ago; and when we contrast the condition of our profession to-day with that prior to '39, we can but feel that the *seeming* evil of separation from the Mother Science, has been overruled for good to suffering humanity, and the credit of general medicine. It is believed the history of no other profession offers a parallel to the remarkable forward strides taken by the Dental profession during these fifty years. Yet rapid and remarkable as has been this progress, when another fifty years shall have "rolled away, breaking their noiseless waves on the dim shores of eternity," it will be seen that at no previous time has it been so rapid and remarkable as at the present.

Never before has the Profession been so well and so thoroughly organized, when so many of its members have been embraced within its societies; when the standard of educational and professional requirements has been so high; when the fields considered proper for investigation and study, have been so varied and widespread, and when the ambition and aim of all seemed to be to study, investigate and disseminate knowledge, as it relates to the Profession.

When in any previous time, has it been known that the Medical Profession was seriously considering "the care of the teeth from a medical standpoint," or when a man so high in the estimation of his profession as Dr. Shrady, the accomplished editor of the *Medical Record*, has said: "That the sooner our Medical Colleges insist upon a knowledge, in their students, of oral surgery, before graduation, the better for all concerned;" when "reflex nervous dental irritations" form the leading discussions of State and National Societies; when Laryngologists begin the study of their specialty at the entrance to the oral cavity, insisting that many of the diseases of the upper air-passages are directly traceable to dental irritations; when the founding of Dental Hospitals and Dental Infirmaries are seriously considered—and indeed are already in the process of formation; and when members of the Profession, from different and distant localities, can come together, as on this occasion, in a mutual interchange of ideas and expressions of good-will towards one another? There is one feature with reference to our Colleges of which I desire to speak briefly, and which I think I can do with propriety, as I know that you, of Ontario, hail with as much pleasure any measure looking toward higher Dental education, as we of the States.

At a meeting of the "National Association of Dental Examiners," held at Saratoga on the 6th of last August, twenty out of twenty-five colleges recognized by that Association being present, a resolution extending the course necessary for graduation, to three years of not less than five months in each year, came up for consideration and received the affirmative vote of nineteen of the institutions present; this vote was afterwards made unanimous, as, in accordance with the rules governing the Association, it became equally binding upon the five not represented, so that to-day all the reputable Dental Colleges of the United States require, on and after the present year, three full courses of not less than five months each, for the graduation of their students; the only exception to this rule is, the degree of M.D. being accepted as equivalent to two years in the Dental School.

The special feature of this whole movement, and one I desire to emphasize, is the fact that it was led by the younger colleges, just as in the Profession at large, it is the younger men that are pushing out into new fields, that are carrying the banner of science to the front, and that are doing so much to broaden and elevate our chosen profession.

Two features more are needed, and which, I believe, will soon come, *i.e.*, preliminary examinations—which indeed are already required in some of the Colleges—and *a pupilage of not less than two years in a reputable Dental office, before being eligible for the preliminary examination.* With these additions, the Dental Profession in the United States will be better organized than any other of the learned professions.

"With its colleges united into one harmonious association, working for the upbuilding of the standards of which they teach; with statutory enactments in a large majority of the States governing the practice of Dentistry; with a three-years' graded course of instruction, with preliminary and intermediate examinations, we may well feel proud of our position and respectfully challenge the Medical Profession to emulate our example."

Whether Dentistry shall ever be recognized and accepted as a specialty of Medicine or not, the rapid strides towards perfection she is now making will entitle her Degree to as much consideration and respect as that of any degree granted in this or any other country.

But there is another feature of Dental Education, upon which I have thought much, though I have never seen it discussed by any of our societies or journals, and as I have the honor this evening of being the guest of an institution, in some respect superior to ours in arrangements, I will venture to throw out the suggestion, trusting that my friends here may find in it something worthy of reflection.

It is the founding of a National Dental School in the Profession, for the Profession, and controlled and maintained by the Profession. An institution about which it may gather, selecting its own teachers, directing its own affairs, and so chartered as to receive endowments and establish chairs in special departments, as is the case with so many of our foremost Theological, Scientific and Literary Institutions. The old men, the pioneers of our Profession, are rapidly passing away. Some of them—all too few, however—have acquired a little means, which they would gladly bestow upon such an institution, so that in a few years it would be placed above financial necessity, and in a position to do better and more progressive work than the schools of the present day.

That you have surpassed us in that your school is founded, in a measure at least, upon the Profession, is to your honor but not to our dishonor. With us the school was the outgrowth of a desire on the part of a few men for more knowledge: with you it was the product of our industry, failures and successes. With thirty years' experience behind you, and with the leading men of the Dominion graduates of our institutions, it were strange indeed if you should not have combined in one school features in advance of ours.

Yet institutions of learning should be judged, not so much by the manner of their formation and the regulations governing them, as by the work they are doing. With us we have many things to condemn, and I doubt not you have *some* things also; while with both there is enough of good to engender a spirit of emulation, and to lead the Profession on the two sides of the Niagara to a closer and more intimate bond of fellowship. The Dental Profession has the making of its own destiny. Whether that destiny shall be wrought out—in the light and experience of the past—in an independent and dignified course of its own, maintaining separate and distinct institutions of learning, and with a separate and peculiar degree as now; or whether Dentistry and Medicine shall be taught in the same institutions, by the same teachers, and all and each having the same degree—a common profession, a common education, a common degree, and having common privileges and common honors—I know not. But this one thing I do know, and this much I desire to say, that Dentistry took its first and greatest strides towards the perfection in which we see it to-day, when, fifty years ago, it started out on an independent and separate course.

Is it possible, gentlemen, that the men laying the foundation of a profession capable of such progress, were "ignorant," "unlearned," "unthinking," "peripatetic itinerants"? I cannot believe it! On the contrary, I do believe that, in their day and generation, they wrought better and wiser than we in ours. We do not flatter ourselves with the notion that we have attained perfection, and that no more truths remain to be found. We believe that we are wiser than our ancestors. We believe also that our posterity will be wiser than we. It would be gross injustice in our grandchildren to talk of us with contempt, merely because they have surpassed us; to call Watt a fool because mechanical power may be discovered which would supersede the use of steam; or Franklin an ignoramus because he did not know that electricity would become the great motive power of the world; or Morse ignorant and unlearned, because he did not appreciate the revolution in the commercial world his telegraph was destined to achieve.

As we would have our posterity judge us, so we ought to place ourselves in their situation—to put out of our minds for a time—all that knowledge which they, however eager in their pursuits after truth, could not have, and which we, however negligent we may have been, could not help having. It was not merely difficult, but absolutely impossible, for the best and wisest men fifty years ago to be what a very commonplace person in our day may be, and indeed of necessity must be. "It is easy enough, after the ramparts have been carried, to find men to plant the flag on the highest tower. The difficulty is to find men who are ready to go first into the breach, and it is the grossest injustice to insult their remains because they fell in the breach, and did not live to penetrate to the citadel."

Sydenham first discovered that the cool regimen succeeded best in cases of smallpox. By this discovery he saved thousands of human lives; and we venerate his memory for it, though he never heard of inoculation. Lady Mary Montague brought inoculation into use, and we respect her for it, though she never heard of vaccination. Jenner introduced vaccination, and we admire him for it, although some still safer and more agreeable preservative should be discovered. It is thus that we ought to judge the events and the men of other times. They were behind us. It could not be otherwise. The question with respect to them is not, *where* they were, but which way they were going. Did they exert themselves to help onward the great movement of the human race, or to stop it? A person who complains of the men of '39, for not being the men of '89, might just as well complain of a projectile for describing a parabola, or quicksilver for being heavier than water.

There is a small lake upon one of the high passes of the Alps, the waters of which find their way to the Ocean by two different channels. One portion takes the course of the "wide and winding Rhine," and goes forth to mingle with the stormy waves and crashing icebergs of Northern seas. Another joins the blue current of the "Arrowy Rhone," and finds its way to the Mediterranean, along the vine-clad hills and sunny vales of France. One finds a home under the cold splendors of Auroral light, amid the freezing horrors of the Arctic Zone. The other blushes in the glow of

Italian skies, and lingers idly around the classic shores and storried isles of Greece. So small is that mountain lake, that a single flake of snow falling upon its surface, and dissolving in its water, may supply a portion for each of the two mighty rivers. Different parts of the same drop, that shot out the rays of the same crystal star, in the snowflake, may have a subsequent history, and a habitation separated from each other by ranges of the loftiest mountains, the utmost diversity of climate and the diameter of the globe.

In a sense, are we not like the snowflake falling upon the bosom of that Alpine lake? Each by his contribution swelling the stream of Discovery. Shall our contribution find a home amid Arctic superstition, error and falsehood, or amid the glow and warmth of truth, progress and light?

> "Man may last but never lives,
> Who much receives, but nothing gives;
> Whom none can love, whom none can thank,
> Creation's blot, Creation's blank."

Gentlemen, the human mind is ever inquisitive, ever ready to scale the most ragged steeps.

"Wake up its enthusiasm, fling the light of hope on its pathway, and no matter how rough and rocky it may be, *onward* is the word which charms its most willing powers."

CHARLES S. BUTLER, D.D.S.,
Buffalo, N.Y.

Toronto, Nov. 21st, 1889.

Dentistry in New Brunswick.

BY A LADY CORRESPONDENT, Moncton, N.B.

I have been reading your JOURNAL with the greatest pleasure and profit. I believe it has the honor of being the first Dental Journal printed in the Dominion,* a fact sufficient to show that the standard of the profession is being elevated in the Dominion of Canada as well as the United States.

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*We are sorry we cannot claim this honor: it belongs to Dr. W. Geo. Beers who founded the old *Canadian Journal of Dental Science* about eleven years ago, but found paying the printers, the editor and all the subscriptions himself, to much, even for such an enthusiast for the general benefit of the profession, as our editor.—[THE PUBLISHERS.]

The articles are, it seems to me, admirably chosen, both for those laboring in the profession, and educating the people as to what their dentists should be.

It is with gratification not unmixed with a tinge of envy, that we in New Brunswick, see the standard of dentistry so much higher in Ontario and Quebec, than in our own Maritime Provinces. I do not mean that we have not as proficient dentists, but while they are protected there by dental laws, we have an open field for quacks, who can in a multitude of ways palm off their proficiency in so called painless (?) dentistry; while they are debarred from their nefarious practice in places protected by law, they come to us seeking "green fields and pastures new" and in the most resplendent dress and in the attractive announcements of painless extracting free of charge, cozen a certain class of credulous persons into having teeth extracted that ache, or in the future may ache, (like the boy who was sent to the store with a picture and flogged before he went, for fear he might break it) and in the meantime extolling the merits of their money-making medicine, warranted to cure everything from rheumatism to a sore toe, and selling bottle after bottle to grateful victims, who think they have struck a bonanza in having teeth extracted without money and without price, when if they had consulted a proficient dentist, they might have been made useful for years.

The time has gone when dentistry was on a plane with any trade, when it was thought that all required was muscle to bring out the teeth; and when any boy working for a few months in a dentist's office could put out his shingle as "Dr. so and so" and cheat himself and his patients into the belief that he was a proficient dentist. Where the community is protected by a dental law and the standard consequently elevated, dentistry is as it should be, placed side by side with the medical profession. When we consider what important effects the teeth have upon the general health, medicine and dentistry seem twin brothers.

We see the good effects of a dental law in that it leads to conventions where dentists may meet, advance and gain new ideas relative to their profession, benefiting themselves and consequently the general public and raising the standard of the profession higher.

It is for the dental practitioners of New Brunswick, to be up and doing, for we know by experience that nothing is to be gained by mere sentiment and theory, each should act well their part, putting their shoulders to the wheel, and with their united efforts, break down all barriers, and present a Bill to the Legislature, when it would seem to all lovers of advancement and fair play that such a body of clever and intelligent men would at once see the advisibility and the necessity of passing it with very little discussion and without a dissenting voice.

It is to be ardently hoped that in the near future we may see such a happy state of affairs in New Brunswick, while I feel confident every right-thinking dentist would be only too willing to do his share to bring it about.

Copper Amalgam.

By Geo. H. Weagant, L.D.S., Cornwall, Ont.

Two years ago, in the City of Montreal, at a meeting of the Con. Val. Dental Society, I had the honor of reading a paper on Copper Amalgam—the very first paper, as far as I know, which had ever been devoted to the subject. My paper was published in several of the Dental Journals, and Copper Amalgam, as a filling material for decayed teeth, immediately sprang into popular favor. Since then much has been said and written both for and against it, and, although I have changed my views in regard to some of the details of manipulation, the main features of my paper are being constantly endorsed, all over the world, by thinking and working practitioners. Nearly every month, mention of it at least, may be noticed in some one or more of the Dental Journals, and often several pages are wholly taken up in discussing the merits, or demerits of this practically new filling material. We never read the reports of the transactions of Dental Societies now, without finding some portion of the time of the meeting taken up, either by papers, clinics, or discussions upon this subject. What, then, can be the reason for this intense and general interest which is being shewn by the profession during the last two years? There certainly must be something in it or the subject would have been dropped long ago. At every meeting and in every number of the different Dental Journals we see new suggestions offered upon modes of treatment, operating, etc., which we never hear of again. New instruments and appliances are described and illustrated and no one ever says a word about them afterwards. Some dentist brings forward a new theory, and devotes pages in proving it, and no mention is ever made of it from that time forth. There certainly must be strong grounds for keeping up this Copper Amalgam question for so long a time, and it seems to me that a solution may be looked for in the fact that dentists saw in Copper Amalgam the very thing they have been wanting for years: the missing step, as it were, in the range of filling materials, which would, in numberless cases, enable us to avoid the dire necessity of the forceps. Since dentists have come to see the value of plastics in the great work of tooth-preservation, we have been on the look-out for this very material. Though thousands of different amalgams, alloys, cements, and other plastics have been brought out and used, and over and over again manufacturers and others have claimed that they were perfect, we now see how universal was the feeling that they were far from perfect, else why the avidity with which Copper Amalgam has been snatched at and lauded to the skies? When it was only proved that it possessed those tooth-preserving qualities that were also claimed for other amalgams? We know of numberless amalgams guaranteed not to shrink. We have seen test tubes containing beautiful amalgam fillings that defied the shrink-detecting anyline dye, and we all of us have seen these very same amalgams "take water" when the supreme test in the mouth was applied. We all made good amalgam fillings, but— (in our inmost hearts we doubted.) We saw many, many failures which we were powerless to prevent. Is it any wonder that we received this Copper Amalgam (black as it was) with open arms? It did not take us long to convince ourselves about the genuineness of the properties ascribed to it. We knew the right article when we saw it. We recognized the signs we had been looking for so long.

A mistaken idea that many dentists have, is that one amalgam ought to be made to fill the bill for every case they may have to deal with, and they go searching the world over for an alloy upon which they can always depend. Many have asked me what amalgam I considered the best; and when I asked, "the best for what?" the surprised reply would be, "why, for filling teeth, to be sure; what amalgam—in case you wished to use only one kind—is best in all cases?" One might as well ask what medicine is the best for all kinds of diseases. If all patients, and all teeth and all cavities were alike—in short, if all conditions were exactly alike, then it would be possible to obtain an amalgam that (again supposing all dentists to be equally skilful) would in every case be equally successful. No one pretends to assert that Copper Amalgam will do for every case—it does not take the place of other materials. It simply performs a service which they cannot do so well, or are utterly incapable of doing at all. It only fills a niche that before was unoccupied, but it fills it well, and those of us who know the importance of being always prepared for an emergency cannot afford to be without this valuable adjunct to our filling materials.

But Copper Amalgam is not so very new, after all. Every now and then someone comes forward, who says he used it years and years ago—thirty and even forty years ago—and it seems strange that we are only now beginning to learn about it. Why, two years ago—when I read my paper—all I knew about it was derived from my own personal experience with it, an experience which was only acquired after years of study and experiment. It must not be supposed that I arrived at my conclusions in a hurry, and, could I only have had the assistance, or even encouragement, of a co-laborer, my endeavors would have been sooner crowned with success. When I began my experiments in this line, I searched diligently all the Dental literature available, to obtain any information bearing upon the subject. I waded through reports and correspondence without number. All our text-books, scientific works, works on chemistry and encyclopœdias were silent on the subject. All I could find out about Copper Amalgam was very little indeed, and very unsatisfactory; but what little I could hear only spurned me on. I managed incidentally to learn that such a compound was used somewhere in the wide world by alleged dentists, with crude and uncivilized ideas, still I had never seen the material in or out of the mouth. I had never seen a dentist who had used it, nor had I ever met a dentist or anyone else who had seen it or known of it being used as a filling material for decayed teeth. Moreover, I was led to believe, from what little mention I could find of it, that Copper Amalgam, from its poisonous and other unpleasant qualities, and its disagreeable name and associations, etc., was wholly unfit to be used for Dental purposes. All that was bad in amalgams generally, I was told, was a hundred-fold intensified in this. If ordinary amalgams discolored the tooth, this turned the tooth such terrible colors that the mere allusion to them produced a feeling of disgust. If other amalgams were suspected of occasionally exerting an injurious therapeutic action upon the system, what could you expect of a material compounded of two such dangerous metals as Copper and Mercury? But it was admitted that there was practically no shrinkage in an amalgam of copper and mercury. This was its only good quality; but, in the face so many dangerous qualities, who of us would have the audicity to experiment with it in the human mouth. Someone has said, "it must have been a brave man who first swallowed an oyster," but, gentlemen, I tell you it required a good deal of moral courage to put the first filling of Copper Amalgam into the human mouth under these circumstances, and I have no trouble whatever in recalling all the incidents connected with my first experiment in this line.

It is not a very difficult thing to make a Copper Amalgam—when you know how; and to one who has had a life-long experience in the manipulation of amalgams it would appear a very easy matter indeed—until he tried. It was a long time before I discovered how to cause copper and mercury to amalgamate at all, and a great deal longer before I succeeded in producing a Copper Amalgam that would set; and when, after an infinite amount of trouble and work, and the expenditure of more time and money than I would care to acknowledge, I obtained a dirty and unwholesome-looking mass of what, I hardly dared to hope, was Copper Amalgam and nothing else, the result was far from promising, and I did not wonder that dentists hesitated to use it for filling teeth. But, crude as the material was, I soon satisfied myself that it possessed properties which ought to prove invaluable in Dentistry. I resumed my experiments with a better heart for the work, and a determination to conquer. I proved, to my own satisfaction, that to the presence of metallic oxides in the amalgam was due the discoloration of the tooth structure, and, in some cases, the disintegration, wearing away or "rotting" as Flagg calls it, of the substance of the filling itself.

We all know that copper and mercury are oxidizable metals—that these metals, under certain conditions, have the power to absorb an immense amount of their own oxides, and an amalgam of these metals may contain oxides without showing them. But the presence of these oxides injures the filling more or less according to the quantity contained; and great care must be taken to avoid it.

A good Copper Amalgam must possess the following properties, viz.: purity, cleanliness, plasticity, and quick-setting. To be pure, it must contain no other metal than copper and mercury—not even a trace. To be clean, it must not contain anything in the shape of oxides of either copper, mercury or any other metal, or any other substance whatever; it must be plastic and quick-setting so as to be easily manipulated.

As I said before, copper is an oxidizable metal, and, in connection with mercury, equally so. The action of water, air, and heat will oxidize it. The oxides so formed render the amalgam unclean, and injurious to its lasting qualities. They also tend to disclorAtion of the tooth structure, which does not occur with a perfect copper amalgam. We cannot prevent the surface of the filling becoming discolored when it comes in contact with the fluids of the mouth; this discoloration is necessary, and whenever we find a copper filling does not become black, it is an indication not to use it in that mouth, because disintegration is sure to take place.

At the time I presented the former paper upon this subject, I was under the impression that the more mercury that could be removed from the amalgam the better, "the more quickly it would set and the harder it would become." Other manufacturers and operators believe so still, and some of them make use of hydraulic pressure to squeeze out the mercury. I have since become convinced that this is unnecessary, that it interferes with the plasticity and sometimes with the setting, and also that extreme hardness is a decidedly objectionable feature in an amalgam. I have also found that when the amalgam contains so little mercury, more heat is required to render it plastic, that this increase of heat makes it unclean (oxidizes it, in fact) and retards the setting.

It was only after a great deal of experimenting that I discovered how to make a copper amalgam which would become plastic at a low temperature, and also set in a few minutes without the necessity of removing mercury. I bring about this result by a process of tempering.

Dental Dots Distilled.

D. V. BEACOCK, Brockville.

If you wish to be happy, use coiled wire belting for your dental lathes: I have had two in use for six years and not a break.

To remove chlor-percha from instruments, dip in hot water, rub hard with a cloth.

Dr. Meriam, says a tooth is worth itself, the teeth with which it occludes, and all that they, united, can do for the organization.

Carron oil—Equal parts of linseed oil and lime water mixed together make a capital application for burns.

The deterioration of rubber dam, is due to the formation of sulphuric acid from slow oxidation of the contained sulphur. Wash well in weak alkaline water.

Dr. Miller says, "Give me these two factors (organic acids and fungi), and I can produce caries which will deceive the most experienced operator or microscopist."

To get pure alcohol, I hang a piece of gelatine in the bottle. It will absorb the water and leave the pure article without distillation.

The lady of the near future will select with jealous care, the dentist who guards from harm her oval case of jewels rare, and ten times more fastidiously than she now selects the physician who assists in augmenting her posterity.

Local anæsthetics: There have been chloroform and aconite, Tiffin's drumine, stenocarpine, cocaine, Barr's, Ball's, and now another is on the road, a *shocking* one, the Vibrator.

A piece of rubber vulcanized over the face of an old worn-out rivetting hammer makes one of the handiest things imaginable for fitting the metal air chamber into casts.

Heat red or white gutta percha on a porcelain slab until sufficiently soft to be kneaded full of oxide of zinc; this makes an excellent temporary filling.

It is a waste of time to varnish and oil flasks; to part the investing, oiling is sufficient in all cases.

Selections.

Protests Against Dental Exhibitions.

By C. Brewster, L.D.S.

Inclosed I send you a Protest against Dental Exhibitions, in the form of a protest to the Committees of Public Exhibitions, to refuse the bestowal of prizes on any such objects. Will you authorize me to affix your name to it? If so, please sign the accompanying copy. The dentists in this city have unanimously agreed to sign it. I have sent a similar copy to every dentist in Upper and Lower Canada (whose name I could procure).

My project is to get every dentist in the two Provinces to sign the paper sent to him, *and return it to me;* whereupon, having collected the signatures of all those favorable to the project, I will then attach all the names that I am thus authorized to use to fresh copies of the petition, and return one to every signer, retaining the *original* signatures, so that should a committee at any time object to the petition on the ground that it was not original, the dentist presenting it could procure from me the original if required; to be returned again, however, in case it might in future be again called for by some other committee. Thus two or three, or I hope *all* the dentists in every city, town or village would have in his possession one of these copies. And any one of these dentists presenting his copy to the committee would be sufficient to prevent any future aspirents to the title of "First Prize Dentists" from obtaining their object. And even should there be any hesitation on the part of the committee, all the presenting dentists would have to do would be to call on all the other respectable dentists of his community to support the motion, for it is from among that class that I expect to enroll most of the supporters of this petition; and, sustained by them, it must have a powerful influence on this point with committees of exhibitions.

I would suggest that every dentist frame his copy, and hang it in his surgery, and it will grace his walls infinitely better than any First Prize Diploma would.

Before concluding, I would inform you that we have succeeded in preventing any prize being given to dentists at the coming exhibition in this city.

Hoping to hear from you as soon as possible,

I remain, your most obedient servant.

P. S.—What is your opinion as to incorporating the dentists by act of Parliament, and obliging all those who in future may wish to practice in Canada, to pass a proper examination before a Board of Dentists?

With regard to this, the opinion was unanimously in favor of it. —C. B.

To Committees of Exhibitions.—We, the undersigned dentists of Upper and Lower Canada, wishing to put a stop to the growing evil of exhibitions of specimens of mechanical dentistry, which practice has increased of late years to such an extent as to be now looked upon by the public as a test of superiority, thereby gradually involving many respectable dentists in the same practice, from the sheer necessity of self-protection.

And whereas we look upon the bestowal of prizes for specimens of this work as tending to deceive, and lead the public into the erroneous idea of supposing such dentists to have superior capabilities.

And whereas we, the undersigned, are aware that such specimens do not at all denote any superiority on the part of the exhibitor, as the superior excellence of the dentist does not consist in the mere mechanism of a set of teeth, but in the adaptation of them to the muscles of the mouth, the expression and form of the face, their proper articulation, and the attainment of many other objects which cannot be properly defined and demonstrated in the show-case of the exhibitor.

And whereas we, the undersigned dentists, have come to the determination of endeavoring to prevent all future exhibitions of this kind, we do humbly petition your committee, together with all other committees of exhibitions that in future may be organized, to refuse the bestowal of prizes on dentists for specimens of this work:

Quebec, C. E., R. Ramsay, P. Baillorgeau, J. McKee; Sherbrook, E., A. Gilmore; Melbourne, C. E., W. Beckett; Toronto, C. W., G. L. Elliott, J. W. Elliott, W. Myers, J. W. Slater; Ottawa, C. W., Oliver Martin, F. D. Laughlin; Hamilton, C. W., John Reid; Kingston, C. W., B. W. Day, A. McMichael, J. T. Clements, L. Clements; London, C. W., A. C. Stone; Belleville, C. W., G. V. N. Relyea; Cobourg, C. W., F. G. Callender; Perth, C. W., G. W. Eberson, A. D. Lalonde; Simcoe, C. W., Charles Rudon; Morrisburg, C. W., R. G. Neagaut; St. Thomas, C. W., H. P. Whipple; Montreal, C. E., Geo. Vanbuskirk, A. Bernard, C. F. Trestler, J. H. Webster, M. Jourdain, H. Ross, J. A. Bazin, C. Brewster.

By their attorney. (Signed) C. Brewster.

I, James Stewart Hunter, a Notary Public, duly commissioned and sworn, residing and practicing in the City of Montreal, do hereby certify that the foregoing is a true copy of the original remaining, of record in my office.

Acte whereof having been requested by the above-named Charles Brewster, I have granted the same under my Notarial hand and seal of office. J. S. HUNTER, N. P.

Montreal, 20th August, 1860.

We publish the above paper with pleasure, and hope that it may serve the dentists in the States to make an effort in the same direction. It is time that something of the kind was done. We gave our views on the subject of Dental Exhibitions, some time since, in the *Dental News Letter*. J. D. W.

Our Canadian College.

The attendance at the College this year is the largest in the history of the Institution. The new college was built about a year ago, the directors were of the opinion that it would be sufficiently large to accommodate all the dental students for some time to come, but each year they have found it necessary to put in a number of additional desks in the lecture-room, as well as new operating chairs in the infirmary. There are seventy-five students in attendance this session, of whom thirty-one are seniors and forty-four juniors. Several causes have combined to interest an unusual number of young men in dentistry. The most potent of these is, no doubt, the fact, that though the affiliation of the College, with Toronto University, and the raising of the standard for matriculation and graduation. Dentistry now occupies a recognized position among the learned professions. The day is past, when a liberal, general education was looked upon as superfluous to a dentist, and good reasoning powers are considered as essential as manual dexterity.

THE ANNUAL DINNER.

The fifth annual banquet of the faculty and students, was held at the Arlington Hotel, November 21st. There were over a hundred guests present, and the dinner was a decided success, reflecting credit both upon the committee of management, and the managers of this fashionable West-End hotel. Among the invited guests were: Drs. Ziegler, Keefer, Fisher, Troutman. Webster, Capon, Hipkins, Stirton, Mills, Ball, Roberts, Callender, Oakley, Foster, Porter, Wade, Richardson, Spaulding, Lennox, Sefton, Adams Sr. and Jr., Cæsar, McLaughlin, Trotter, and Messrs. C. H. Hubbard and Chandler. Dr. Aikins, Dr. Geikie, Dr. Butler, and Rev. Leroy Hooker, represented sister institutions and were the guests of the faculty. Letters of regret were read from Hon. G. W. Ross, Mayor Clarke, Rev. Dr. Kellogg, Vice-Chancellor Mulock, Principal Kirkland, Dr. Beers, and other prominent men who were unable to be present.

After full justice had been done to the excellent menu that had been provided, President A. W. Thornton, delivered a short address in which he discussed various questions of interest to dentists, dealing chiefly with such as have reference to professional etiquette and practice. Whether or not Mr. Thornton had by mistake, taken a mouthful of pepper-sauce just before rising, is not known, but certain it is that his remarks were very pointed. The toast to the "Learned Professions" was then briefly responded to by Rev. Leroy Hooker, and Dr. Fisher, of Wiarton, after which Dr. Willmott proposed the toast to "Sister Institutions" in his usual happy style. Dr. Aikins in reply, spoke of the good feeling which should and does prevail between medical men and dentists, and pointed out how they might render each other much valuable assistance. Dr. Geikie spoke of the growing variety of dentists, and created much amusement. He had carefully watched the interests of the college from its babyhood, and trusted that it would have a glorious youth and manhood. Dr. Stuart, of the Faculty, then proposed the toast to "The Dental Profession" which was responded to by Dr. Chas. S. Butler, of Buffalo, who delivered the address of the evening. (See page 18.)

The toast to "The Faculty" was responded to by Drs. J. B. and W. E. Willmott. The former said that he was proud of the College and felt that he had good reason to be so. He was pleased with the students of 1889 and 1890, and complimented them on their ability. Dr. W. E. Willmott, as the youngest member of the faculty, was warmly received by the students. He spoke briefly and ended by wishing the students success in the spring. Representatives from the students of Trinity, and Toronto Medical Schools, the College of Pharmacy, and Toronto University, were then called upon, and all responded. Short and pithy address were also delivered by the dental students themselves, Messrs. Mills and

Moyer, representing the seniors, and Messrs. Boyes and Fill, the juniors.

Along with the toasts, was a good musical programme, rendered collectively and individually, assisted by one of the best of the city orchestras. Mr. W. Richardson acted as musical director, and Mr. W. J. Trotter as accompanist. The committee of management was composed of A. W. Thornton, President; A. T. Pearson, and H. D. Boyes, Vice-Presidents; G. J. Musgrove, Secretary; W. A. Richardson, W. J. Trotter, A. Agnew and Dr. Lennox.

The proceedings were closed by the singing of the national anthem, after which the guests dispersed, each feeling that he had passed what *The Mail* was pleased to call "a most scrumptious evening."

ODONTOLOGICAL SOCIETY OF QUEBEC.—The first meeting of this young society was held in the rooms of the Medico-Chirurgical Society, Montreal, on the evening of December 11th. The following were present:—Messrs. Bazin, Andres, Lovejoy, McDairmid, E. B. Ibbotson, J. S. Ibbotson, Stephenson, Berwick, Brown, Vosburgh, Globensky, Bourdon, Brosseau, Barton, Fitzpatrick, Maufette, Beers. The President, E. B. Ibbotson, in the chair. The President addressed the meeting in a few well-chosen words, explaining the objects of the Society, and trusting that on the second Wednesday of each month the members would make a special effort to attend and contribute to the programme. Incidents of office practice were discussed. W. George Beers gave a contribution, with microscopical and blackboard illustrations, on "Hyperæsthesia of Dentine," which was afterwards well discussed.

Editorial.

A Word to Our Readers.

The immense increase of the dental profession in the Dominion, need not alarm the pessimist. It is simply commensurate with the growth of the country. Let us ask ourselves, if it is not wiser and more patriotic to develop our own professional resources, and to improve the standard of education at our own doors, than to worry ourselves over foreign spheres, where we are not needed, however kindly we are received. To each one of us the reputation of

Canadian dentistry ought to be paramount. The success of a Canadian dental College: of Canadian dental societies: of a Canadian dental journal, ought to be received with personal delight. What claim could we have to recognition and an aspiring and progressive profession if we had to depend entirely upon the schools, the societies and the journals of our kindly neighbours? Would not any dentist in any city, town or village of this Dominion, feel personally ashamed if his patients reproached the Canadian profession with negligence in these matters?

It is impossible to conduct a journal to please everybody, but everybody can give us advice; and anybody who sees scope for improvement, will confer a favor, only second to the remittance promptly of past and present subscriptions, by writing his convictions to the editor.

Volume Two.

This number begins a new volume. The Dominion of Canada, as an integral and important part of the greatest empire in the world, is fully awake to its material and political possibilities. The dental profession in such a country cannot afford to be without a home journal. The DOMINION DENTAL JOURNAL, belongs to the Canadian profession.

Help or Hinder.

Which do you intend to do? This Journal is not published to push the business interests of its proprietor, or the professional success of its editor. They are both perfectly independent of any such collateral necessity for attracting notice. Somebody must risk something, and somebody must sacrifice time if Canada is to have at least one Dental journal. The publisher risks his money, and the editor freely gives his time. Now, do you not think, "gentle reader," you have also a personal and professional interest in helping, by your subscription, by your advocacy, by your contribution of hints and more elaborate papers, and by your advice. Tell us just what you would do if you were editor, and do not be backward in giving advice, for we feel every day the need of it.

Of course there are other journals, richly endowed by wealthy business firms, better than this one. But this one is the only one in Canada. It could easily sell its independence to-morrow for such a sum as would pay for its publication for years to come. But it is loyal to the Canadian profession, and would no more sell out its advertising pages to one firm than Canadians as a people would sell their national birthright. We need our own independent journal in this great Dominion, and we care more to see it in every Dental office from Halifax to Vancouver, than if its circulation was doubled from Maine to California. Our neighbours do not need this Journal: Canada does need it. Therefore we ask every Canadian dentist to "fall in" the ranks of our helpers.

Dr. W. R. Patton, of Cologne.

When we were younger than we are, one of our most promising *confreres* left his native city, Quebec, where he practised a short time, and settled in Germany. During the existence of the "Canada Journal of Dental Science," he sent us contributions. We are delighted to be able to announce to our readers that our Canadian friend and brother was elected to the honourable position of President of the "American Dental Society of Europe," at the meeting held in Paris last August.

Is will also gratify our readers to see the name of Dr. Patton on the outside cover of this Journal, as Corresponding Editor, and also to have the contribution read by him at the Paris meeting.

A Historical Document.

Under the head of "Selections" we print a historical document of great interest to the Canadian profession, from the *Cosmos* of December, 1860. The late Dr. A. Bernard, in 1842, made a fruitless effort to obtain some legislative protection, but there was nothing of a practicable character until this original effort of Dr. Brewster's. It is specially interesting to Ontario practitioners, because the chief correspondent with Dr. Brewster was Dr. B. W. Day, of Kingston, who getting his inspiration in this way, became the father of Ontario Legislation, seven years afterwards. We print the document just as it appeared in the *Cosmos* with the remark of Dr. White, then its editor.

In retiring from office after twenty-one years of unceasing effort on the Quebec Board, Dr. Brewster may justly feel that he has earned the respect of confreres in both Provinces, as he enjoys the affection of those who have all that time been intimately associated with him.

Our Advertisers.

Breaking stones, or driving a street car, would "pay" better than publishing a Dental Journal in Canada. Nobody ever thought of making this Journal, or its predecessor, a paying investment. It might be made to pay if it would become the advertising monopoly of one firm, but it never will. Were it not for the advertising pages it would be a heavy loss to the publishers, even though almost every Dentist in Canada is a subscriber. The Publisher is under obligations to those who advertise, and the Editors have no hesitation in asking Canadian Dentists to give them the preference when they can.

Legislation in New Brunswick.

Coincidently with the letter from a lady correspondent, we have received from Dr. Murray, Moncton, N.B., the preliminary draft of a proposed Dental Act for New Brunswick, providing for the organization of the New Brunswick Dental Society, with a Council composed of seven legally-qualified practitioners, "who have obtained a Degree from some recognized College or University of Dentistry." With the general provisions of the Bill we are in hearty sympathy, but we object decidedly to a number of gentlemen possessing foreign degrees constituting themselves a council to compel New Brunswickers to attend foreign colleges and obtain a foreign degree in order to be "qualified" to practice in a Province of this Dominion. It is no reproach to New Brunswick that it does not yet possess a Dental College. The numerical strength of the Profession there, as well as the demands of the public, do not justify an effort of the kind. But with the example, for many years, of Ontario, and that of Quebec, Manitoba, and British Columbia, we can see no reason why our friends who ask Legislative protection for themselves should not be willing to burden themselves with a like responsibility, without forcing British residents to a foreign country, in order that they may have the privilege of practising in their own.

There is another and even more serious objection. Hundreds of graduates of the colleges to which our New Brunswick students would be forced to go by this law, obtained the D.D.S. in one session of a few months, without any matriculation, and without any previous practice. This fact was so glaring and so openly practiced that many of our best men discarded the D.D.S. to their name. Some of them still refuse to use it. The Profession is crowded with scores of humbugs possessing this degree. It was given by English-teaching Dental Colleges to men who could not speak a word of English, and it was given to students who gave promissory notes for their course and never paid them: it is held to-day by a large number of men whose personal and professional reputation are about as low as they can be. True, it is held by our worthiest and noblest. It is honored by being held by devoted students and scholars. But is it at all likely that New Brunswick will attract the latter? We know what our fees are in comparison with American cities and towns. The experience of Ontario and Quebec ought to suffice to prove that applications, by the New Brunswick license from the United States, will be made almost exclusively by the D.D.S.'s of no repute, and no doubt by some of ill-repute. The only safeguard of the professor, as well as of the public, is a Provincial Board of Examiners, accepting college tickets as any equivalent they like, but compelling all applicants to submit to examination, *both* preliminary and practical. It cannot entail much trouble, and if the promoters of the Act are sincere in their desire, as we are sure they are, to elevate the standard of education in New Brunswick, they certainly ought not to humiliate their Province by driving students to foreign founts for knowledge. To encourage attendance at any well-equipped college is a different thing. But we believe it would be unconstitutional as well as unfair to say to a Canadian, "we have no Dental College in the Maritime Provinces, and if you want to practice here you must bring us a foreign diploma," Our New Brunswick friends have lots of pluck. Let them have self-reliance, too.

"The King and Queen of Dentistry."

We commend this latest addition to the professional quackery from over the border, to our Maritime Province friends who want to put a premium upon foreign qualifications, and a penalty upon "home manufacture."

A party using an *alias* writes with the above heading from New Glasgow, N. S., saying he has practised in Massachusetts, Nova Scotia, New Brunswick and Canada! What I would like to know is what would the costs be for me to obtain a certificate, for I wish to settle down in Montreal. I've passed before the Commonwealth of Massachusetts Board of Registration in Dentistry. He heads his letter "from Montreal," evidently to delude the inhabitants outside. He suggestively adds, "I pronounce my name as ——— (giving an English name) in English, although it is ——— (giving a French name which has no association with that in English).

The Quebec Act would give this Royal Humbug a snug little surgery in the city jail. Some of our New Brunswick friends may be perhaps disposed to give him a Provincial license because he possesses a foreign degree.

The Penalties of Office.

One of the inevitable penalties of prominence is a share of unfair and sometimes malicious criticism. Good-natured people who never indulge in personalities about men who occupy humble positions, instinctively set them up as a target the moment chance or ability gives them the precedence. Count the number of truly unselfish men who come to the front out of office, and do their best to help their leaders, and how they dwindle in comparison with the army of obstructionists. To do many a man credit, however, there are some whose nature is retiring, and who have no thought of hindering a good work, but who prefer to co-operate by silent and unobtrusive assent. When shrewd statesmen are pestered by obstructionists of a serious stamp they give them a Government berth to quiet them, and there is no better way to take the wind out of the sails of a demagogue than to put him into office. Yet there is an element of danger in this. Look, for instance, at the political tramps which infest the Province of Quebec: the host of briefless barristers who starve in their legitimate occupations, but who, like Sancho Panza, think themselves fit for government. Men who utterly neglect their only means of existence: who have been professionally bankrupt: for whom public subscriptions were not long ago raised to pay their rent, fuel, etc., within a few months after filled positions at not very extravagant salaries, yet who seem by the profuseness of their wealth and the luxuriance of their surroundings, to have discovered some magical method of "raising the wind." The Province is politically as rotten and corrupt as these men can make it. Even religion is dragged in the mire to promote the political ambition of these office holders. There is no punishment bad enough for such corruptionists; but they will hold office so long as they can live on the credulity of their simple-hearted people.

Happily, professions are rarely as contaminated as politics. The leaders of thought and action, as a rule, are unselfish. There is no "boodle" in professional honors or offices. Some men's envy carry them to the extreme of accusing hard workers of working for their own interests when they are paid to give the best of their thought for a profession: but they would not undertake to occupy their position for double the reward. Men who spend much of the time they ought to give to their profession in preparing themselves to become teachers; who make themselves more efficient as such than their detractors; who give their very leisure to study and thought for their profession, frequently have the penalty of unfair criticism to pay. Yet what grumbler would willingly undertake to do their work?

It is one of the vices of this continent—a thing very rarely found in Europe—that arrogant pretension can foist itself into prominence when merit and modesty have to sit in the rear. So well is this known as one of the successful elements of social, political and sometimes scientific promotion, that many men make it their chief, if not their only aim. Yet there are teachers and leaders who do honour to the profession they represent. If it is thought they do not or cannot, they should be deposed. If it is known they do, they should be loyally followed.

A Personal Explanation.

The Montreal editor wishes to say, in reference to a published statement that "he has secured the agency for Montreal" of a new patent, that he has done nothing of the kind. In fact, he positively refused any such offer, or any privilege which would not be equally extended to every other dentist in the Dominion. Learning, however, that a party intended to obtain a monopoly of what may or may not prove to be a useful invention, the Editor of this Journal checkmated the effort for the benefit of his confreres; but he receives neither discount nor favor of any kind. Instead of securing any privilege or monopoly for himself, he has enabled every practitioner in the district named to enjoy "equal rights."

Our College.

A correspondent in our last issue criticizes the College in relation specially to its "Museum." The responsible officers are not in the least thin-skinned, and will, we are sure, not object to fair criticism. But it strikes us that they might turn the tables and criticize their profession, and especially their former students. The provision is made for a museum, but it is the business of the profession to furnish it. The fact is, we want more patriotic interest in the College.

Reviews.

A TEXT-BOOK OF ANIMAL PHYSIOLOGY, WITH INTRODUCTORY CHAPTERS ON GENERAL BIOLOGY, AND A FULL TREATMENT OF REPRODUCTION. By Wesley Mills, M.A., M.D., L.R.C.P. (Eng.), Professor of Physiology in McGill University; over 500 illustrations; New York: D. Appleton & Co., 1889; Montreal: E. M. Renouf. Professor Mills fully realized that. in succeeding to the chair in McGill, vacated by Dr. Osler, he had a difficult task before him. No man could possibly put more enthusiasm and solid sincerity into his specialty than Dr. Mills brought to bear to secure the confidence of a critical Faculty and the respect of intelligent students. The result of his love-labour is seen, not only in the valuable work before us, but in an unremitting devotion, day by day, to concentrated investigation and research.

It is much easier for a full and enthusiastic teacher to amplify than to condense, and it will be gratifying to the busy practitioner, as well as the student, that Prof. Mills has wisely put his subject in a succint, as well as interesting manner, that tempts one to read all when beginning to read any. His work improves upon other physiological works by being founded on the comparative method. It introduces biological science, and ventures into some of the most fascinating avenues of scientific study. It does not play with facts by the light of fancy, but it embellishes known facts by literary polish and excellent illustrations. The illustrations alone are worth double the price of the book. It bears out the author's reputation for original research, and it defers to recognized and recent knowledge. Among modern contributors to original research the author must be classed; and one of the chief features of this work is the certainty that it will revive among practitioners who have perhaps abandoned any full reading on physiology, an interest in the subject. To students, it is the indispensable book of the day. It has been adopted as the text-book in McGill. The Quebec Dental Board has also adopted it, and we warmly recommend it to all Medical and Dental teaching bodies, for the clearness with which the author handles his life-work, for the beautiful typography and illustrations, and for the fact that there is no other one work in existence which as fully, and yet so succintly, covers the field it occupies.

DENTAL MEDICINE: a Manual of Dental Materia Medica and Therapeutics. By F. I. S. Gorgas, A.M., M.D., D.DS. Third Edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St. (E. M. Renouf, Montreal), 1889; cloth, $3.25.

Messrs. Blakiston have a well-merited reputation for their standard works for dental students and practitioners. Almost a complete dental library may be selected from their list. We do not think the "approval" of the National Association of Dental Faculties has in every case been judicious, in the selection of text-books for use in the schools of its representation. In some measure the movement has brought forth considerable plagarism, and a lack of originality in matter and illustration. Bond's Dental Medicine was a good old stand-by in its day, and to a large extent a liberal contribution to our literature. The work of Dr. Gorgas, fills a niche very much felt by American colleges. Its 427 pages include introductory chapters on the action of medicinal substances; inflammation, digestibility of foods, weights and measures, topical remediesl the endermic and hypodermic methods, setons and issues, genera, and local blood-letting, doses, poison, the pulse, etc., etc. The Materia Medica and Therapeutics, are very complete from acacia to zinci sulphas.

We have just one fault to find with the author; a fault which is repeated in this third edition. He gives a list of forty-two authorities consulted, but both in the prefaces to the three editions, and in the list of authorities, he entirely overlooked the deep obligation he owed to Mr. James Stocken, L.D.S., England, author of the *Elements of Materia Medica and Therapeutics with Pharmacopœia*, published by Churchill, of London, in 1877, and appearing as a third edition before Dr. Gorgas' first. The close resemblance between the work of Mr. Stocken and that of Dr. Gorgas, is no detriment at all to the latter, but evidently our worthy friend of Baltimore, forgot when acknowleding his obligations to a long list of other authorities, the chief of the clan residing in London.

DENTAL CHEMISTRY AND METALLURGY. By Clifford Mitchell, M.D. Chicago: W. T. Keener, 96 Washington Street, 1890.

When the modern dental student discovered, on the shelf of an old bookstore, a copy of Piggott's Dental Chemistry and attempted to reconcile the chemistry of the past with that of the present, he perhaps got one of the best lessons in the scientific progress of the Profession within the last thirty years. We have hardly yet attained to that position when chemistry for the dental student will be distinctive from that of the medical student, but anyone familiar with the investigations of Dr. Miller, of Berlin, and other thoroughly scientific chemists, must admit that chemistry has become an indispensable adjunct, not only of the education of the student, but of the every-day active practitioner who seeks to improve the problems of practice. When Dr. Mitchell issued the little predecessor of this work, it seemed at once to fill a gap; but this enlarged edition is specially valuable, inasmuch as it has been rewritten, and is not a rehash. It includes the essentials of chemistry for dental students, general chemistry for dental practitioners, laboratory course in elementary chemistry for dental students, laboratory course in dental chemistry and metallurgy. Besides a concise arrangement of chapters on physics, chemical philosophy, inorganic chemistry, organic chemistry; the chapters of special interest to the dentist in practice are those on the Saliva, its physical characteristics, functions, etc.; the progressive experiments arranged by Prof. Salisbury, and chemical work in the dental laboratory, and complete course in salivary analysis. There is a freshness in this work which does not encroach upon any other of the many volumes added to our literature. It has been adopted as a text-book by the American colleges, and we recommend it strongly for use among our Canadian students and practitioners. It is beautifully printed and a credit to the publisher as well as the author.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY, 25th Annual Meeting, May 13th to 17th, 1889, Chicago, H. D. Justi. There has always been a western freshness and independence in the proceedings of this Society. The Report of the Committee on Dental Science and Literature makes it lively for some of the recent additions to American dental literature: protests against the advertising cuts; the rehash of old magazine articles; obsolete methods of practice; improper use of technical terms, and, in fact, is very much more condemnatory than even Mr. Servill's reiterated opinion in our last number. There is a good deal of valuable matter, which we hope to draw upon.

DENTAL METALLURGY: A Manual for the use of dental students, by Chas. J. Essig, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy in the Dental Department of the University of Pennsylvania. Second edition, revised. Philadelphia: the S. S. White, Dental M'fg Co., $1.75; sent by mail on receipt of price.

Any one who has listened to Dr. Essig's lectures would expect to find in this valuable little work, a sensible and practical digest of all that is absolutely necessary for the dental student in this primary part of his studies; and as every wise man is a student, though he may have been in practice half a century, it is a book useful to everyone in the profession.

We believe that very much more attention is given in the mother country to training students thoroughly in this branch, than is devoted by dental colleges on this continent. Students are too much in a hurry to become operators. Most of them have cause to regret it, when the demands of a general practice fall to them. Dr. Essig's book should be thoroughly digested by every dental student.

A CHARMING SOUVENIR.—*The Youth's Companion* Double Christmas Number is a charming souvenir. Its delicately-colored cover encloses a wealth of stories and pictures that are intensely interesting to readers of all ages. Some of the features are:—"Christmas in a Wagon," by J. L. Harbour, a story of pioneer life in the Rocky Mountains; "A Double Decker," by Mrs. Frank Lee, a story for the boys, and another for the girls, entitled "Beth's Memorial Stocking," by Mrs. H. G. Rowe; an interesting description, by Emory J. Haines, of the famous "Minot's Ledge Light;" Arabella B. Buckley's "Sleep of Plants, and What it Means;" "Attacked by Cheyennes," by K. L. O. F. Wolcott, a story of wild western life; "A Christmas Night's Sensation," by Clinton B. Converse, and "Alice's Christmas," both fresh and appropriate to the season; highly beneficial editorials on "Thoroughness" and "Stanley's Return," with a beautiful page for the very young children, together with anecdotes and bits of fun, combine to make a complete treasury for the whole family.

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Address.

*BY W. GEORGE BEERS, L.D.S.

MR. PRESIDENT, LADIES AND GENTLEMEN,—When I accepted the invitation to join the boys to-night, in a ceremony which might make the mouths of the founders of Canadian dental reform water with envy, I thought at first it was to be a quiet sort of family farewell, where one could unbend a bit, like teachers and pupils who both love football; and yet, where one's gray hairs would perhaps entitle him to talk kindly, like a father, experienced words of caution with the warmest words of cheer. I flattered myself that the task would be light and congenial, and that the happy graduates would endure me, because it was to be the very last of a long list of lectures they had survived, and because, too, they might hope to catch from one's confessions, some of the needed warnings which active practitioners have "learned in suffering to sing in song," and for which I know I would have been grateful when I first launched forth eager for the fray, to set the world on fire. You know there's nothing running to such waste as the burning passion to bestow advice. It is a perfect drug in the market of moral ethics. It is a possession with which even misers are extravagant. It would not be difficult then, to give our graduates the

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*At the Closing Exercises of the Royal College of Dental Surgeons of Ontario.

benefit of one's own mistakes, in order that they might avoid them, and to point out those faults and follies of a professional career through which most of us have had for discipline to pass. It was formerly a superstition that every child should have measles, chicken-pox, and croup, just as the belief exists to-day in some parts of the Province of Quebec that physical life is not complete without variola. In much the same way, it seems to be a heresy to deny, that a man can steer clear of reefs and rocks against which the most of voyagers strike; but were this true, and were the beacons and signals of no avail, would not every shoal and lee-shore of life be strewed with human wrecks, and many a hopeful heart perish in despair? There are perils of a peculiar character in the practice of dentistry, and pitfalls of more than ordinary obscurity; there are duties a man will specially owe to himself and his own nest and nestlings, superior to those that can possibly belong to the public, however nobly unselfish, and willing a man may be to lay down his life, if needs be, for his brethren; there are perplexities and temptations, and there are splendid occasions to do the duty of unselfish, earnest and truthful men. But, however parsimonious of self-praise, or prodigal of self-censure, the telling of all this would dispose us to be before our confreres; we do not like to make a public exposure of our own imperfections, or even successes, before the patients.

And it was enough to take one's breath away to learn, at the eleventh hour, that I was to be permitted, for at least thirty minutes this evening, to be "intoxicated with the exuberance of my own verbosity," and in such a literary, legislative and university centre as this advancing city, and in presence of distinguished gentlemen, whose public life makes speechifying to them mere child's play, and who, if they talk in their sleep, do so, I am sure, with classic and Corinthian polish.

However, Mr. President, with all the dangers and drawbacks before me, were I to say that I am sorry to find myself here, then like Montaigne's page, I "would not be found guilty of telling the truth." It is indeed a great personal pleasure to be allowed to add another link to the long chain of my connection with the dental movement in Ontario; to meet face to face and hand to hand, a new detachment of earnest and leavening recruits, bound in dentistry in this Province to do, not to dream, and who seriously mean in zeal and honesty, to do some such service for their profession, and therefore for our great Dominion, as has been done for law and medicine by our University teachers, and for our trade and commerce by our educated agriculturists and merchants. We have lately commemorated in Ontario and Quebec the events which led to our first educational efforts twenty-one years ago, and I confess I like to look back on the coincidence, perfectly freed from any political thought, that the birth of this reform in Ontario was contemporaneous with that of the Dominion, and that when our statesmen were in session in Charlottetown discussing the union of the Provinces, our Ontario dentists were in session in Toronto, planning the reform and consolidation of the profession. It was a pioneer work, like that done by the first settlers of this Province along the shores of the St. Lawrence, Bay of Quinte, Lake Ontario and Lake Erie, when the rude log-hut, the yoke of steers, a pig, a gun and an axe formed the stock-in-trade, perhaps, of the fathers of some of the gentlemen here; and we, whose lives are cast to-day in pleasanter places, have good right to revere and respect those old-fashioned days of sturdy hearts and wooden ploughs. There are a few practitioners still in our ranks who were practising dentistry in Canada before most of us were born, and when I have heard from their lips the struggles they had to endure, as they perambulated the country with their box on their back like modern rural peddlers; when I even recall the regular custom in Montreal when I was indentured as a student, and was notarially bound not to reveal to our rivals "the secrets" of the profession; when we contrast those days with the present free-offering which every respectable dentist makes of his knowledge; when we compare the past in Ontario, within the memory of confreres who are here to-night, with the success achieved in its teens by this school, with the proud affiliation with one of the leading Universities of the Dominion, giving for the first time in the dental history of the Empire, a distinctive and unsullied dental degree, I feel that the responsible stewards of this institution have not only done an enduring service to the profession, but a practical one for the State. I have had constant and active association with the profession from that important epoch, and I know the sacrifices the promoters of legislation and education had to make. I was familiar with the unreasonable opposition of well-meaning sceptics, who had no more faith that a dental Act of Incorporation would elevate dentistry in Ontario, than that a charter would avail to secure a railway to the moon. I remember the war-whoops of hate raised by a few, who condemned a principle in dentistry they unconsciously commended in medicine and law; and who, had they been in the wilderness with Moses, would, I firmly believe, have fought against the passage of the Ten Commandments, as an unnecessary and dangerous piece of legislation. Even many who to-day loyally acknowledge the value, and aid the objects of association, then stood silent in fear. It was thought by the most moderate opponent that legislation was impracticable; that the idea of a school was Quixotic, for "*Quis custodiet ipsos custodes:*" that it could become nothing better than a fickle and feeble imitation of the clap-trap system, which was then manufacturing Doctors of Dental Surgery over the border in one session of four months. It was said that a dental school in Toronto would have to pawn its parchments to pay its way; that it would have to hawk its degrees about the Province for sale, and, as was satirically said of the diploma of a foreign College, that it would thus "be enabled to get rid of its debt—by 'Degrees.'" Those were the prophets of despair, who seem to have lineal descendants in other spheres of our national life; whose crest should be "the white feather;" who have as many hands as Gyges to raise against the gods; and who, at least, seem like men standing on their heads, to see everything the wrong way. The success we see to-day is due to the fact that Ontario dentistry has leaders of quiet faith and earnest courage, who have quitted themselves like men. Had our friend Dr. Willmot and his associates shaped their actions on the fear or fury of obstructionists, you, gentlemen, would have had to pick up your experience in the Province in the old imperfect way, or cross the lines to get what you could not get here. There is neither exuberance of fancy nor exaggeration of fact in these statements. The gentlemen who shouldered the responsibility of conducting this school, did not imagine that the mere readiness was sufficient professional equipment, or that their duty should be set to music. They had not the presumption of the son of the Vicar of Wakefield—a chip of the old block—who, you remember, went to Amsterdam to teach the Dutch English, but who found when he got there that he had forgotten to learn Dutch. Your lecturers qualified themselves to teach. You have received didactic instruction, in this first Dental School in Canada, equal to any you could get on this continent; and if some features are not as yet made as attainable as in colleges in the United States, remember that one of those foreign schools has just passed its fiftieth year; that others have had twenty-five, thirty and forty years of existence, as richly endowed institutions in large and populous States. And yet not one of these colleges has so far exacted anything like the high standard of matriculation, or the conditions of studentship demanded of students in Ontario and Quebec. The D.D.S. of Canada so far represents an educational standard as to preliminary examination, only surpassed by the requirements of the Dentists' Act in England; and if we believe that general cultivation and a liberal education is as necessary to the highest sphere of success in medicine and law, it cannot logically be denied in its application to the highest attainments in dentistry, if our teaching, our associations and our literature are to expand. It is patent to us all that under the primitive system of training students, the profession produced many excellent men; some whose native genius and ingenuity "burst the bars of invidious birth, and broke the force of circumstance;" but the future of the profession will be settled on a higher plane, by the preservation, or even the increase of the standard of the admission examination. No fact in connection with education in the medical, dental, law, and even many of the theological schools of the United States, seemed to a Canadian more inexplicable, than the absence, until about twelve years ago, of any sort of preliminary. To such an extent was this neglect carried, that not only were thousands of men graduated as doctors and dentists, ignorant of the most elementary branches of an English education, but up to the last few years, diplomas were conferred upon men of foreign speech, who did not understand one word of the language in which the lectures were delivered. Though our American cousins have not raised the standard of the preliminary to that of Canada and England, we must congratulate them upon the proposed increase in the period of study; and it will probably not be deemed altogether a breach of the unpretending modesty which in some respects we feel towards the older and more richly endowed United States schools, if we recall the historical fact that the first movement towards the abolition of a provision which recognized five years of any sort of practice as equivalent to one session, was the direct result of the peremptory action of the Quebec Board, in cutting off from recognition two of the leading schools for too elastic an interpretation of this provision. In a measure our humble efforts in Canada, even years ago, were fairly received over the boarder, but my conviction still exists, that the American diploma of D.D.S. had no claim for recognition until the abolition of the five years' clause, and the exaction of a preliminary. I think what I have said may, perhaps, elevate the respect you should entertain for the degrees you have received to-night; and it is well to remember that towards this school and the profession in Canada you now have reciprocal duties to perform. Have faith in your own Canadian school as you have in your own Province and in the Dominion, and if defects appear, do not imitate the folly of the farmer who, failing to reach the caterpillar, cut down the ancestral tree, under whose spreading boughs he had been soothed by a mother's lullaby. And if circumstances, which no man can always foresee, force you to seek foreign founts of inspiration, or perhaps of life-work, even though the collective wisdom of the "Associated Dental Faculties" refuse to recognize the plea of your parchment for professional union, generous and noble cousins, whose warm hearts and open hands have often aided our movement in Canada, will be the first to wish you "God speed."

Is it not a suggestive reflection that dentistry, as a recognized science, is the youngest of the professions, and that there are gentlemen in this room, in the prime of life, who were born before the first dental association, the first dental college, and the first dental journal? Medicine can trace its history back to the early periods of Grecian civilization. The medical schools of Cos, Rhodes, Cyrene, and Croton date back from 400 B.C. Hippocrates, "the father of medicine," was 500 B.C. Law goes back to the schools of jurists in the reign of Tarquin, 448 B.C. Enthusiastic dental antiquarians, who will never be happy until they believe they have disinterred excavators and pluggers used in the Ark, try to make some bold statements of Herodotus, and passing remarks of later writers, give color to the belief that ancient Egypt was the cradle of dentistry. It was declared that gold fillings had been found in the teeth of mummies from Thebes, but it was discovered that, like other parts of the mummies, the teeth had been merely gilded. It is a fact, however, that the idea of replacing lost human teeth by substitutes of bone or sycamore wood set in gold, has been traced to Egypt by modern discoverers in ancient sarcophagi; and, I dare say, that some of you may have seen and handled the specimens in possession of our friend and confrere, Dr. Barrett, of Buffalo. These do not, however, substantiate any claim whatever that the work was done by specialists in dentistry, but more certainly by the ordinary gold and silversmiths, who, for instance, worked in the great synagogue at Alexandria, and who, as in Jerusalem and other places, divided the working of metals into separate branches. It is easy for you to draw upon your imagination—that is what it is for—and picture to yourself an Eastern beauty standing before the framer of a buckle or an ear-ring, and, as she perhaps smiles at his blandishments and blarney, discovers to the goldsmith the loss of an incisor. With instinctive ingenuity, and no doubt a lively sense of friendship to come, he offers to carve a substitute of bone to fill the gap, as he carved the buckle, and then fasten it to the adjacent teeth, as he would fit the ear-ring, by golden loops. Still, we must let our antiquarian dentists amuse themselves; and when you remember that the Jewish Rabbins aver that the worms of the grave have no power over Abraham, Isaac, Jacob, Moses, Aaron, Miriam, Benjamin, and David, it is not unlikely that some Chicago dentist, disguised as a Turk, strolling through Hebron, should excavate some ancient molars from a burrow, and believing they were those of Abraham, Jacob, and Miriam, contribute them to the attractions of the next "World's Exposition." Or perhaps, some of our Toronto graduates, when hunting deer or fishing for trout in the Laurentides, which Sir William Dawson's fossil discoveries verify as the oldest parts of Creation, should discover that Dental Bridge work is contemporaneous with the *Eozoon Canadense.*

But, seriously, the progress of dentistry—especially instrumental and mechanical—within the recollection of the first students of this school, has been marvellous. Young practitioners would no more think of accepting most of the theories and methods of treatment prevalent twenty years ago, than they would adopt the vagaries and materia medica of Celsus. And yet, I fear, we go into raptures without sound reason, over the claims that many make as to the progress of the purely scientific on this continent. We cannot deny that the most scientific and profound literature in our specialty is altogether foreign to our hemisphere ; that until certain books were compiled to order, some of which are bare-faced plagiarisms of British or German productions, American dental colleges were taught the science of dentistry from these foreign text-books. Most of our advancement has been made along mechanical lines, the mere prosthetic, and little or nothing in the investigation of those embryonic conditions which lie at the base of the predisposing causes of poorly calcified teeth. No complaint of this sort can be made as to the study of the relation of fermentation to caries, the fungi of the mouth, etc., so carefully investigated by Dr. W. D. Miller, of Berlin, Germany; but when we reflect that the special disease of caries is increasing in all civilized countries, not merely like a transient epidemic, which we prepare to battle with until we can safely predict its disappearance, but as a physiological certainty in by far the largest proportion of healthy children of healthy parents ; when we consider the fact that probably not a hundred people could be found in this city between the ages of fifteen and twenty who have escaped diseased teeth, and that the majority of children do not attain their sixth year free from this calamity, when we reflect upon this connection of caries with a period when nutrition is most active, and "decay" should be anomalous, it would seem that there is here a neglected field for scientific research. I look with horror on such statements, that in one dental office, or rather *abattoir* in New York, 15,000 teeth were extracted last year ; that from four to five tons of gold, forty-five of silver and tin, besides several tons of other plastics, were used in the United States alone last year ; while it is estimated that 6,000,000 of artificial teeth were inserted, and 20,000,000 of human teeth sacrificed by neglect.

Where is this to end ? Is the hypothesis, founded upon the laws of descent and adaptation, that the offspring of those who have lost their teeth early, might be born without tooth-germs, to become probable ? Is there to be a generation born without teeth, as they say our distant ancestors predicted that which has come to pass, that their distant successors would be born without tails ? Can we grow better teeth ? Can we do anything to control nutrition during the formative period ? What are the disturbing and favoring influences of calcification ? Do you not think that the imperfect character of dental education on this continent has had the most to do with our solid ignorance on such important questions?

As the youngest country on this continent, we have no reason to be ashamed of our position. Naturally enough, the organization of the profession occupied the chief attention. Quebec's effort in 1842 to secure legislative protection died still-born. It followed the lead of Ontario in 1869; but if you had the misfortune to be obliged to deal with its Local Legislature, and to meet the many peculiar intrigues with which hungry lawyers and unscrupulous applicants are able to confront the Association, you would thank your stars more than you do, that dentistry in this Province is not at its mercy. With the two official languages, and a French majority, it gives me the greatest pleasure to say, that in the twenty-one years of our existence we have never had one syllable of national discord, and that French and English are as honest friends to each other as brothers can possibly be. Manitoba, British Columbia, and the North-West Territories now have legislative protection. New Brunswick has made a move, which, we trust, will pull all the Maritime Provinces into line.

I feel I have exhausted you, if not my time. Some of our guests may think that, as a body, we vastly overestimate our professional significance and work; but I am reminded of a recent remark of Her Majesty the Queen to Sir Edwin Saunders, her Household Dentist: "Yours is a very important profession, for while some need the skill of the occulist and aurist, almost all need that of the dentist." If in any sense dentistry in Canada is popularly depreciated it may be largely our own fault; but I know no better way to change this misfortune, than through the education and appreciation of medical men, who come into earlier contact with family ailment, and who really have exclusive opportunity to warn and advise as to the care and importance of the teeth. With some such co-operation, the ethical and financial questions would solve themselves, and it would not be a dentist's impending fate, as was said of the English curate, that he will likely become "the best educated pauper in the parish." As the graduates of this school increase in number, and spread throughout the land, this educational intimacy will become more easy; the public will learn to believe that the loss of the teeth is a loss of function; that their preservation from youth to old age is possible, and that there is something better under the sun, in the way of artificial substitutes, than the "Cheap Jack" vulcanite fiend has the ability to supply.

It may not have occurred to you that, as a profession, we deal with the most prevalent disease of the age; a disease which may begin in the cradle, and follow ninety per cent. of its victims through the seven ages to the grave. Do you not think then, that if the Canadian public as intelligently appreciated their teeth as our neighbors, that Canada could maintain twice the number of dentists? And yet we know that, as a fact, it is a poorly paid profession. All through the old Province of Quebec, the forceps of the country physician suffices for the dental demands of ninety-five per cent. of the rural population; and one would imagine that the sneer of Robespierre during the French Revolution, when he was asked and refused to spare the life of the eminent chemist, Lavoisier, whom he sent to the guillotine, had become paraphrased: "The Republic doesn't want chemists."—"The Province doesn't want dentists."

Gentlemen graduates, before we part, let me say a word on a subject which is always in order, from the mother's lap to the school-room; from the University halls to the very pulpits. We may differ as to what, and where, and how Christianity should be interpreted. We are sure to sympathize with Charles XII., when, after failing to make twelve watches run together, he was struck with the folly of trying to make all men think alike on matters of religion. But if we are sincere, above baser party ties, to promote the weal of the land we live in, that it might become great, glorious and free, then neither race, nor religion, nor color can separate us from the duty we owe to do some patriotic service for our land. What boots it to the soldier in battle whether or not the comrade beside him worships at his shrine? but it matters much to him whether or not he will be true or traitor. I sometimes fear that a portion of our political press and the army of our political tramps would bring us to that state of society to which Dr. Arnold, of Rugby, alluded in his History of Rome, "where patriotism becomes impossible—the inner life being so exhausted as to inspire the citizen with neither respect nor attachment." I feel I owe no apology for reminding you that, as good citizens, you owe loyalty and patriotism wherever you dwell.

It is wise and worthy to start into professional life hopefully and honestly. You need not think you can make short cuts, or take crooked ways. If you do, you will lose time, and will have to come back and start again straight. It is better to have too much enthusiasm in your profession, than too much contempt; better to broaden your life-work and thought by collateral culture, than to circumscribe it by narrow views. It is better to build castles in the air—and doubtless you'll build many—than not to build at all; better to sing Psalms with the professional Davids, than grunt Lamentations with the professional Jeremiahs; better every day to turn introspective thoughts as a moral duty, in search of your own peccadilloes, than to think you can win popularity or renown by insidiously hunting for those of others. It is better to be even a second or third class dentist, than to imagine that you and the Premier are misplaced, and that he is in your place; better, and happier, and healthier, a thousand times, in the long run, to feel that your every-day duty, for which you've here been trained, is exactly the appointed work God has given you to do. And if you feel impelled to kick up a dust in Olympus, and cheek the gods, and teach humanity what nobody else has been able to tell it, go first and talk it over with some quiet woman—your mother, if God has spared her—and I fancy you'll come back with your metaphorical tail between your legs. Remember we are here to-night just to lift you tenderly and cheerfully out of your professional cradle. We have taken away your feeding-bottle; we've covered you with parchment, and given you "God bless you." In fact, professionally, you've been born, baptized and married all at one stroke: and take now one of the first, oldest and best hints that has been given to man since the world was created: Take a silent partner—you probably have already one in view—who will love you, and encourage you, and help you, and swear by you, even if you go home like a cowardly brute and beat her with a stick.

As a guest who rejoices in witnessing to your marriage to dentistry, let me tell you that even in the days of your professional honeymoon, you will have days of doubt and difficulty, but dutiful courage and cheerfulness always bring palmy days. You may believe me that you could not be happy unless you were sometimes miserable, just as you'll never have true success unless you have occasional failure. You will get your dose of discipline like the rest of us, but stand it like men, and you'll confess that you got it just where it was needed when the clouds roll by. You'll have days of despair, perhaps, when you'll lie on your back and almost wish you were in your coffin, but duty and courage transmute them into days of happiness, when you wouldn't change this lovely earth for any premature hope of heaven. It will often compensate you in arduous work, in which no man in Canada ever became rich, to feel that you do humanity a daily service ; that every day you prevent or ease pain, and that if you give pain, it is only that pain may cease. Now, gentlemen, to work. There is your duty. The dentist waits in his office. The procession will soon begin for you. The healthiest infant, as well as the invalid, the richest as well as the poorest ; the worthiest scholar, the wisest *savant*, the greatest statesmen, even the kings and queens of earth must walk in, take their place in the chair, and submit to sit before us, with open mouth. I think it is quite time for me to close mine.

Original Communications.

Dentistry in the Canadian North-West.

By W. D. COWAN, Regina, N.W.T.

The dentists of the North-West Territories certainly cannot be reproached for inactivity and unprogressiveness. It is but as yesterday since white men took possession of this great land, and yet already we find it dotted all over with thriving towns and villages, every one of importance of which is now supplied with at least one generally competent dentist. It was not always thus, though, for until quite recently the country was overrun with men who claimed to be dentists, but many of whom no doubt knew but little of a dental college examination, and who were unsettled and irresponsible to their patrons. Thus for a time the dental profession had, to a great extent, lost the confidence of the people, and it will yet take a long time to reinstate our profession in its proper place in the eyes of the people. We who are now here are reaping the fruit of the seed sown by our predecessors, and in hundreds of cases where dentistry—true dentistry—might successfully be practised, our patrons will permit of nothing but absolute malpractice.

They no doubt feel that it is better to be rid forever of any possibility of trouble than to repeat former experiences. However, it is my impression that, ere long, the North-West Territories will as proudly boast of her dental profession as can the people of the older Canadian Provinces, (and certainly they have reason to be proud), for we have here already in this vast country men who are not only proud to acknowledge themselves dentists, but who are gifted with plenty of push, energy and ambition, not of that selfish nature which looks only to self-advancement, irrespective of the annoyance it causes to his fellow-practitioners, but to the advancement of the profession as a whole.

Best of all, however, it becomes apparent immediately on acquaintance, that the dentists here have the highest possible conception of what a dental education ought to be, and of the position a thoroughly qualified dental profession ought to occupy. Truly, then, we have good grounds for believing that the North-West will yet be a strong factor, in helping to maintain the leading position in the world as held by the Canadian dentists.

Of course, it will be a long time before we can well support a dental educational institution out here, but until such time as we can have one, I think no fear need be expressed of us discriminating against our excellent Royal College of Ontario, by admitting to practice here graduates of other colleges of inferior standard. That is the sentiment I have always heard expressed throughout the Territories; and although the standard, I am glad to say, has been changed in many of the colleges since our first "Dental Ordinance" was drafted, yet I think all will agree that we have done very well for a beginning (although we did not get one-half of what we asked) and that we have established ourselves on a good solid, all-Canadian basis. I believe these Territories can support a greater percentage of dentists than any other part of Canada (in fact, there are more dentists here now per population than in any other part of the Dominion). It may be that a great part of the people, living as they do at a considerable distance from any dentist, have neglected their teeth in the past, and are now compelled to attend to them; but allowing for this, and considering only those who are favored by locality, I must express my surprise at finding the condition of mouths I have found here. Judging from my experience in Ontario and five of the American States, I must say the people here are the best dental patrons I know of. It is asserted that "the higher the civilization and the higher the living, the greater the dental requirements." If such is the case, then the North-West Territories must hold a very exalted position, and be very comfortably situated. There is no stinginess about our patrons here; they want their work done well, and are willing and ready to pay for it.

There is one thing I notice here which calls for mention, and that is the excessive number of abscessed teeth. I could easily understand it were they generally very badly decayed, but the number of abscessed teeth is entirely out of proportion to the number possessing any outward lesion, or at most a small cavity. I so often see teeth abscessed and for which I can give no other reason, that I have concluded that it is due to the extreme rarity of the atmosphere compelling people to breathe entirely through their mouth, it being impossible on a clear cold day to breathe through the nostrils. The extreme cold air coming so often in contact with the tooth and causing so many changes of temperature, I believe, kills the pulp; result—abscess. If it is not this, I should like some of my fellow-practitioners to enlighten me, as to the reason of the death of the pulp in so many cases where there is no cavity, no canal formation and apparently no other cause.

However, such teeth seldom lie dormant any length of time, but generally make themselves known and felt immediately after the death of the pulp, and in such cases, of course, they are easily treated. That such is the case, I think, is evidenced by the fact that often—very often—when these teeth are opened into, a small amount of pus is found, but when this has been removed my experience has been that, by using a brooch, a considerable portion of the pulp can be taken out dead but sufficiently intact to allow of its removal. Now this, I do not think, would occur had the pulp been dead any length of time, and did it occur but occasionally, I should not feel surprised; but, as I have met it here so much more frequently than in other localities, I think it worthy of mention.

The North-West Territories of Canada Dental Society are called together for their first annual meeting, to be held at Regina on July 1st and 2nd next. It is expected every dentist in the Territories will be present, and amongst the most important works that will be proposed will be the making of the Society an educational body and the appointment of a committee to secure information with regard to the teeth of our aboriginal Indians, before civilization will have advanced so far upon them to effect any change. So far, my experience with the Indians and half-breeds has been somewhat limited, and to make it unlimited would be anything but pleasant, for they have frightfully dirty mouths. To clean their teeth, of course, is a thing they never do. As a general thing the jaw of the Indian is massive, the alveolar process being of extreme thickness and strength; and that the structure of their teeth is better and stronger than that of the white man I am thoroughly convinced. I myself have never seen a pure Indian with a decayed tooth, and in this I am supported by Dr. Dodd, of the Mounted Police here, who has spent five years amongst them; and he asserts that in the five years he has never seen a pure Indian, living in Indian style, that had a decayed tooth, but he does assert that he has lanced "gum boils" (Medical parlance) for them; so that I would infer that the Indians are also subject, to some extent, to the same trouble as I have already referred to as existing amongst our white population here, viz.: death of the pulp without any corresponding lesion.

I have extracted only a couple of teeth for half-breeds, but I must say this division of the family have not by any means the teeth that their aboriginal predecessors had. The half-breed teeth are not good, but occasionally very bad, and especially where their surroundings are anything respectable.

One young lady, a half-breed, who had been reared the greater part of her life in one of Regina's best homes, enjoying, I presume, all the luxuries of civilized life, has teeth that are presenting every appearance of decay in at least a dozen different places, while some of them have already gone so far that nothing but the outer shell of enamel is left. One of these I had the pleasure of filling, although she came to me to have it extracted. Seeing a good opportunity for experiment, I cleansed the tooth thoroughly, and found a perfectly healthy and live pulp entirely exposed. I did not resort to either arsenic or capping, but mixed my amalgam and inserted right on top of the pulp. She gave signs two or three times during the process of being hurt, for I pressed it down pretty hard, but she went away with it perfectly easy, and no further trouble has been experienced since. The last time I saw it the filling was perfectly sound, and on that occasion I also noticed that those teeth which were only commencing to decay when first I examined them, were now decayed considerably, they decaying equally as rapidly as is common among the white population.

Two other half-breeds of about eighteen years, who have been most of their life working as servants for white people, and living as servants generally do, have teeth equally as bad as the first case. Their teeth were of a somewhat chalky nature, and five of them contained six cavities. These I filled, and as yet the fillings are good.

All of those whom I have been able to examine, and who live as near as they can to the manner of the white people, have a decidedly poor tooth for their race, much worse than those half-breeds who live a semi-civilized life, and the latter much worse than the pure Indian. But even those half-breeds who follow generally the life of the Indian have not as good teeth as the Indian, so that I am forced to the conclusion that not only does the manner of living seriously affect the tooth, but also that the children do not always inherit the mother's teeth.

Dentistry in Prince Edward Island.

By J. S. BAGNALL, D.D.S., Charlottetown, P.E.I.

In this fair and fertile Province of Canada, dentistry has not yet attained the standing it is entitled to. Here, at present, the wants of something like 120,000 people are ministered to by seven dentists ; and, so far as the law is concerned the graduate from an office is placed on exactly the same footing as the Doctor or Licentiate of Dental Surgery. In short, the young man who has spent a few weeks in an office has, legally, just as much right to practise the profession as the man who has spent both time and money in mastering the details of the profession. It scarcely need be said that the consequences of this legal looseness are generally as disastrous to the mouths of the patrons of such novices, as they are annoying to the duly qualified practitioner. In Ontario, Quebec and British Columbia the laws governing the practice of dentistry are very good, and in the neighboring Provinces of New Brunswick and Nova Scotia the people are moving in the matter of securing better protection for both dentists and patients. Perhaps Prince Edward Island will shortly make a move. Here also, I may add, the click of an electric mallet has never been heard, neither has the thorough examination of a set of teeth with the electric light ever been made. It is true the dental engine, the automatic mallet and all standard anæsthetics are used. The principal inducements offered are cheaper work in one office than another, some special kind of gas, rubber or other material used and some wonderful office secret?

But as the world moves on so must dentistry in this Province. Even now the horizon seems to be brightening up, indicating better days to come.

Alveolar Abscess.

By J. G. Roberts, L.D.S., D.D.S., London, Ont.

An alveolar abscess is a cavity containing pus, with or without a fistulous opening, having its incipiency between the external and internal plates of the alveolus.

CAUSES.

(1) Putrescent pulp; (2) tartar accumulations; (3) necrosed tooth or root; (4) carious bone; (5) necrosed bone; (6) foreign materials, as broaches, fillings, or perforations, etc.

Alveolar abscesses are most likely to occur in those persons of a manifestly inflammatory diathesis, or where there is a local inflammation from some local exciting cause. In cases of constitutional predisposition the abscess in time assumes a chronic character, secreting and discharging pus continually, generally accompanied with little pain, though soreness is usually felt around the tooth affected.

Abscesses may be either acute or chronic, according to length of duration.

Symptoms of acute abscess: Violent throbbing pain, redness,

Synopsis of paper read at London, Ont., June 28th, 1889.

heat, swelling and fluctuation, with sense of fulness in tooth from gases arising from putrescent pulp. These symptoms last from eight to ten hours to three or four days.

The patient usually suffers from prostration. Tongue is coated, and rise in temperature is noticed. In chronic cases the changes take place more slowly. Pain is less severe. Infiltration of pus into the surrounding tissues, particularly in persons of strumous diathesis.

Alveolar abscesses may discharge pus: (1) Through canal of tooth; (2) at edge of gum between root and surrounding tissues; (3) through external or internal plate; (4) into antrum of Highmore; (5) back into pharynx.

TREATMENT.

Remove cause. If from tartar, then remove tartar with suitable instruments, being careful to leave no small particles below the margin of the gum. If abscess be caused from sanguinary calculus, then remove all foreign particles below the gum and inject a stimulating astringent application, as $H_2 SO_4$ (aromatic). This will dissolve small nodules from the root, and also stimulate the parts to healthy granulation.

Several treatments are usually necessary to restore parts to their normal condition.

Sometimes $H_2 SO_4$ (aromatic) is not strong enough to accomplish the object desired. Then $H_2 SO_4$ 30% or 40% may be employed. If abscess be caused from necrosed or carious bone, tooth or root, thoroughly remove all diseased bone, being careful to scrape bone down to the healthy part. Here care should be exercised in selecting suitable antiseptics. $H_g Cl_2$ (1 in 1,000), carbolic acid (1 in 40). In cases of weak constitutions it is necessary to give constitutional treatment; tonics, etc., to assist nature. The iron and quinine preparations are frequently employed. If abscess be caused from foreign materials, as particles of broaches projecting through apical foramen, remove these and treat to restore the parts to normality.

Probably the most frequent cause of alveolar abscess is putrescent pulp. The first part of treatment is to get rid of all putrescent material. If pulp has died under a filling, open pulp chamber thoroughly so that free access may be had to all roots. Stir up putrescent nerve, and wash out with warm water.

When canal has been thoroughly opened and cleansed, press walls of abscess together to evacuate pus.

Wash parts thoroughly with warm water, and inject a solution of carbolic acid, bi-chloride of mercury, or per-oxide of hydrogen. Pump hydrogen per-oxide up canal with hypodermic syringe or cotton wrapped around broach until there is no effervescence.

Insert a small rope of cotton loosely into canal, and leave for a day or two.

If abscess have a fistulous opening, inject creosote or strong solution of chloride of zinc through canal with hypodermic syringe until the solution passes out through the fistulous opening. This solution should be strong enough to burn off the glary membrane lining the sac of the abscess, and allow healthy granulations to take place.

If abscess form on the root of a tooth that has been treated and filled, we may apply palliative treatment to abort the abscess. If this will not do, then stimulate to suppuration. If the abscess return, drill through process and remove the abscess and sac.

Synoptical History of the Dental Art.

By Chas. A. Martin, L.D.S., Ottawa.

Sometimes patients ask how far back does the origin of dentistry as an art date. Many believe that half a century ago very little was known on the subject. Others give as the extreme limit of the origin of the art, one hundred years. In order to give an intelligent answer to these questions, I sought for old works where information could be gathered. The one selected as containing more information than any I have seen, was published in London in the year of 1846, by James Robinson, Surgeon Dentist to the Metropolitan Hospital, etc., of extracts from which this paper is principally composed. Assuming that some of my hearers may not have had opportunities of ascertaining facts concerning the origin of our art, I deemed it would instruct them, and interest all, by compiling this synoptical history.

The origin of medicine, like that of many other arts, is involved in considerable obscurity. To heal the sick, mitigate the pangs of suffering humanity, and stand between disease and death, were considered god-like attributes; and, therefore, the ancients, who leaned to the theological rather than to the natural truth of things, affirmed medicine to be a divine emanation and impersonated it firstly in Apollo, and next in his son Æsculapius; and thus its early history is mixed up with mythology and poetry.

Although we cannot imagine a state of society so happy as to be free from pain, disease, and death; although accidents, the changes incident to the growth and decay of the human body, the invasions of pestilence and the casualties of battle, must at all times have called attention to medicine, and rendered the practice of the art a necessity, still we have no authentic history of its rise and early progress. Eusebius mentions Atholes, an Egyptian monarch, as having written several treatises on anatomy; but the existence of this king is doubted by others; and Thouth, an Egyptian, who, according to Diodorus, lived B.C. 2,000, is generally supposed to be the first who wrote on medicine, which in his time was not cultivated as a separate art, but was practised indiscriminately by priests and warriors, poets and philosophers.

Although the increase of luxury, and consequently, of attention to personal appearance, must have rendered the subject of dentistry one of considerable importance; and although the eye and ear had long been objects of particular observation and separate practice; yet it is not till the time of Hippocrates that we meet with any notice of the diseases of the teeth, or of those who practised the art of dental surgery. This is more extraordinary, as the significance of these organs, to say nothing of their ornamental or useful functions, was acknowledged in a remarkable manner by the ancient Egyptians, so that one of their most severe and infamous punishments consisted in the abstraction of a front tooth. There is no doubt, however, that the manufacture of artificial teeth and other branches of dentistry, existed after a fashion, much earlier than history informs us. The loss of a front tooth, whether by disease or not, would naturally, under any circumstances of Egyptian law, give rise to unpleasant suspicions, and every exertion might be expected to be made to supply the deficiency. Accordingly, Belzoni and others have dicovered artificial teeth in the sarcophagi of the Egyptians. These, it is true, are rudely made, and from being of wood, are ill adapted for performing mastication; nevertheless it may fairly be inferred, that their effect on the articulation of the voice, and the support they afforded to their natural brethren, would suffice to point out dentistry as a pursuit for the ingenious and mechanical.

We have historical evidence, that in the palmy days of Greece and Rome, the diseases and general appearance of the teeth met with considerable attention. At the commencement of the Christian era, we find, in the writings of Celsus, very explicit instructions respecting several important operations on the teeth; and during recent excavations at Pompeii and Herculaneum, various dental instruments have been discovered, much resembling some of those in use at the present day.

Aristotle speaks of forceps for extracting the teeth. Pliny also and Martial mention various tooth powders; and the wearing of artificial teeth evoked the satire of more than one Roman poet. (Martial makes habitual allusions to artificial teeth as worn by the ladies of Rome in his time.)

Among the Greeks, a peculiar affection, called stupor of the teeth, is particularly described in connection with the presence of tartar. This people looked upon dentition as a mysterious and significant event; and those who died before its fulfilment were denied the funeral honors of the adult, and ignominiously buried, instead of being burned in the usual manner.

As a distinct art, however, dentistry received but little attention from the ancients. The writings of Hippocrates and Galen, which formed the medico-dental text-books, contain receipes for electuaries, powders, and elixirs for beautifying the teeth, but nothing on what may be called the proper art and science of dentistry (dentism this author calls it).

In the early part of the eleventh century, Albucasis, an Arabian physician, wrote on diseases of the teeth, and gave drawings of a number of instruments used in his time for extracting, scraping, and the other dental operations then in practice. But it was not till the end of the sixteenth century that the art began to receive that undivided attention to which it is entitled both by its difficulty and usefulness.

No less than thirty-eight treatises on the subject were published about that time. These abound, indeed, with what is nowise useful at present, but still the spirit that produced them is an evidence that the subject was beginning to be considered of importance, and that time and experience alone were required to raise dental surgery to its proper standing among the arts.

The first attempt to classify diseases of the teeth was made by M. Fouchard, of Paris, who has been denominated the father of dental surgery. Before his time, the practitioners of the art seem to have considered the teeth merely in their mechanical phase, taking little account of them as complex, organic structures, entering by their own vitality into the formation of the living body. M. Fouchard had the merit of directing attention not only to the construction and separate treatment of the teeth, but also to the indications which, in common with the adjacent parts, they furnish of the general health.

This was an important advance in the subject. For that the teeth not only represent the apparent, but also the *innate* fundamental constitution of individuals, is unquestionable; nay, so intimately are beauty and firmness in these organs connected with health, that the celebrated Delabarre (to whom we are indebted for an excellent work on the subject), recommends those mothers who have constitutionally bad teeth to refrain from suckling their children, lest they entail not only bad teeth, but debilitated constitutions on their offspring; and he points out, that in choosing a wet nurse, "her eyes should be lively and animated, her hair and eyebrows brown or light-colored; her lips red; her teeth sound and good; her gums hard and well colored." We before mentioned that, by the end of the sixteenth century, thirty-eight treatises had appeared on the teeth. France, in the 17th century, had also its Muller, Martin and a few others. The first idea of porcelain teeth is due to a French apothecary as early as 1774 (by Dr. Jullen, in *Dental Science*).

But so much had the subject grown in consideration at the end of the eighteenth century, that no less than one hundred and fifty-eight works connected with it had been given to the European public. To enumerate these works would be inconsistent with this paper, but it may not be amiss to notice a few of the most important. Thus Bunon published in 1723; Menton in 1746; Le Cluse, in 1755; Bourdet, in 1758; Bunon again in 1759. In 1766, the celebrated work of Jourdain made its appearance; and in 1770 Thos. Birdmore produced a work on the teeth, which, by its value and importance, obtained him the appointment of Dentist to George III. From 1766 to 1768, Robert Woofendale, a pupil of Birdmore, practised in the city of New York—the first regular dentist, it is said, in this country. In 1784, Dr. James Gardette, a Frenchman by birth, was established in Philadelphia, and remained in practice there forty-five years. He was the first to apply the principle of atmospheric pressure to sustain artificial teeth in the mouth, which he discovered in 1800. John Greenwood, said to be the only dentist in New York in 1790, struck up a gold plate by swaging in 1799, and claims to be the first person who had done so in America. He was Washington's dentist, and made him several sets.

About this period the famous John Hunter turned his attention to the subject and presented the world with his "Natural History of the Teeth," a production which, while it enlarged the sphere of dental knowledge, piqued the pride and aroused the ambition of the English practitioners of the art.

The inaugural dissertation on the structure of the teeth of men and animals, published in 1798, by Robert Blake, gives evidence of the rapid strides that has been made in the anatomy and physiology of the teeth. The most important of the works at the time are those of Fox, 1803; Bell, 1829; Nasmyth, 1839; Owen, 1840; also those of Snell, Waite, Robertson, Jobson, and Koecker; besides which, we might enumerate several smaller works by Saunders, Clendon, White, and others, many valuable detatched papers in transactions and periodical publications.

France, in the nineteenth century, had well-qualified dentists and writers for the times. Delabarre, Desorabode, Maury, Laforge, Duval and many more. Within the last century dentistry has advanced far more rapidly in the United States than in any other country. Thus, we have Gardette in 1821, and the talented Hudson, the friend and companion of Tom Moore, a noble Irishman, skilful and thorough in his work; the first, as is now supposed, to fill the fangs of teeth to the apex; Parmley, L. S. Parmley, and Flagg, in 1822; Trenor, 1828; Fitch, 1829; Brown, 1833; Spooner, 1836; Goddard, 1843; and in 1845, Dr. Harris, one of the editors of the *American Journal and Library of Dental Science*, published a most able and comprehensive work, entitled the "Principle and

Practice of Dental Surgery," which in 1866, had reached its ninth edition. And many other productions on the subject have appeared in America, and especially in the periodical just alluded to.

That some of the opinions of the ancients respecting the teeth should be useless for our purposes is by no means surprising. Hippocrates describes them as glutinous extracts, from which the fatty part has been burnt up by heat, and affirms they are harder than the other bones because they have no heat in them. It is hard to appreciate the meaning of this at the present day. Aristotle, however, (who, as is usual on all subjects, has some excellent generalizations respecting the teeth of man and animals,) declares them to be the only bones that grow through the whole of life; because, he says, they would soon be worn away by attrition, unless they were continually renewed. This, at all events, is intelligible and suggestive, whatever may be thought of the conclusion which Aristotle deduces from it. He adds, that the growth is manifest in those teeth that have lost their corresponding opposites in the other jaw.

In the *Dental Cosmos* of January, 1887, is a translation from a little German book published in 1541, and supposed to be the earliest volume devoted to the teeth. The *Cosmos* says: "The style is so quaint, the description so peculiar, and the directions so droll, that we feel sure of the appreciation of our readers in affording them an opportunity of its perusal. We have placed it in our book-case beside the "American System of Dentistry," in illustration of *Then* and *Now*.

A word respecting the present state of dental art and science. The conditions of success appear to be not different in this from what they are in other branches of knowledge and practice. They are all summed up in one phrase, *United Labors*. Whatever of discrepancy there is in the works of our chief authorities, is greatly owing to the isolation in which they studied, and to the want of a general means of collating their ideas. Again, whatever of progress we find in that country which takes the lead in the dental art, appears to be due to an absence of prejudice and jealousy which allows free communication of ideas, and association of common interests among the members of the profession. For the Association of Dentists in America has not only given its members generally a status in society unknown to dentists elsewhere—has not only repressed those characters who intrude themselves upon the public here (England) and given merit its station, and honesty its pre-eminence, but has also contributed largely to the advanced state in which dental science stands in the United States.

In Canada, there still lingers to a large extent this disposition to isolation, and of fee competition. Our colleges and associations have, no doubt, broadened the views of individual dentists, and will ultimately (though apparently slowly) bring about the desired epoch when we shall be united in our labors.

That a change—a great change—has taken place in Canada within the past thirty years, is quite evident to those practising then and at the present time. Then, the individual dentist was all absorbed within the narrow limits of his office and laboratory in the production of his own material, instruments and appliances; keeping secret any discoveries or inventions he might chance to make, in order to, if possible, excel his collaborator. It were laudable to excel if the object be the general advancement of the profession; but, unfortunately in many cases, selfish desire to draw custom and obtain local popularity was the sole aim. The mechanic's son would obtain a situation with a dentist to work in the laboratory, and in a surprisingly short time he knew it all (or at least he thought so), and would launch out with a kit of instruments of his own make, encased in a box, and travel the country—for in those days it required a large territory in order to obtain sufficient patients. Occasionally meeting with intelligent people of an inquiring mind, who asked questions concerning the disease of teeth, he soon discovered the necessity of studying the subject; some, more studious than others, did so, and became prominent, with a good reputation; others, relying solely on the silver piece, mercury bottle, and a file, for filling teeth, and a key of Garengot and a lance for extracting, had to give up and give place to the one who got a furnace, moulded and baked his own mineral teeth with forge, crucibles and rolling mill, manufactured his gold plate and solder, swaging into shape and fitting to the mouth plates that have given satisfaction and comfort to the wearer for upwards of twenty years, and obtained for the mechanical artist a wide reputation that endures to this day. Others, who had the means at command, and were ambitious and progressive, went to dental colleges in the United States, and returned with a diploma, giving them considerable prestige over their less fortunate collaborators. Desiring to bring dentistry from a perambulating workshop up to the dignity of a profession, they established a college in Toronto, with the laudable object of perfecting the future dentist, and had an Act passed in Parliament compelling practising dentists to obtain a license, the requirements oi which you are all familiar with. About this time vulcanite or dental rubber came into use, (I remember well the clumsy, ponderous vulcanites then used). The cost of dental plates was considerably lessened, causing a new era to be inaugurated. Teeth with dead pulps that heretofore were filled and a hole bored into the chamber, to give vent to gases and decomposing debris, were quickly extracted to be replaced with ones more certain of success; and rumor has it that sound and serviceable teeth were sacrificed to improve the symmetry, and sometimes to increase the pecuniary value of the work. The abuse of rubber and amalgam by unscrupulous mountebanks, caused the high grade dentist to decry the use of such vile mercury salivating materials. Much correspondence ensued, a thorough analysis and extensive tests were made, resulting in the retention of these materials for dental purposes. The manufacture of these materials have been continually improving, and are to-day a great benefit to a large portion of the people. The introdution of teeth with artificial gums in blocks, greatly enhanced the beauty of rubber plates; instead of joints between each tooth, five joints only in each set are required to be adjusted, enabling the skilful artist to closely imitate the continuous gum process which so beautifully resembles perfect nature. Atmospheric pressure has been a grand stride forward over the cumbersome spiral springs; also relieving natural teeth from the numerous clasps which have destroyed so many.

The pivot tooth with the hickory peg has given place to numerous ingenious devices in artificial crowns, and modes of fastening, all superior to the wooden peg; and as the wooden peg has been known to last for twenty years and more, with the increased knowledge acquired for preparing roots, the improved cements, and with gold and platina pins and screws, the modern pivoting process should be everlasting; and a greater scope is given to the dentist for producing artistic beauty. Within the last ten years most wonderful progress has been made; gold filling is rendered comparatively easy, by the improved methods of preparing the gold; the oxide and phosphate filling materials are a great acquisition; the amalgams are not the eyesore they were wont to be in the past, although some are advocating copper fillings; they certainly are not pretty, too much resembling the old coin silver fillings, still they are beneficial in particular cases. It would make this paper too long and perhaps tedious, were I to enumerate in detail the numerous inventions, both in material and appliances, which have been introduced to the profession within this short period. I will merely name celluloid, cast metals, and aluminum as being used as bases for artificial teeth, with apparent success, by their advocates. Gold is again coming to the fore, in the bridge-work process. That some of these new modes will be enduring, and become permanent fixtures in the profession, is hopeful; but it is evident that some are on the wane, the boom has passed, expectations are not realized by the experience of time. Implantation is the latest (a demonstration of which is promised at our clinics). If this method proves a permanent success, it will certainly be preferable, in many cases, to plates, or *bridge-work*, *nous verons.* But why continue? The many dental periodicals now published by our United States brethren (to whom we owe so much for our present status) are teeming with able editorials and cleverly written articles on every detail pertaining to our profession, filled also with illustrations, so well executed as to give a clear conception of the various modern appliances.

Up to the present time the whole modern system has been carefully compiled, and given to us in three volumes, entitled, "American System of Dentistry." As has been shown, the progress of this branch of art, from the earliest period, has kept pace with the physical defects, and consequent remedial requirements. The new recognized profession of the dental art, has proven to the world that it is a necessity—in fact, indispensable. Members of our profession are vieing with each other, to produce something still better than anything now extant, in order to ameliorate the sufferings of their fellow-beings, and by ingenious devices, replace defective organs with artistic substitutes, and rendering contact with one another more agreeable and pleasing to the eye, thereby fulfilling, in part, a duty due to humanity.

I may here remark on the great benefits to mankind conferred by the advanced dental art. Picture to yourself the condition of society in the (so-called) civilized countries, if artificial restoration did not exist. The contorted features, sunken lips and cheeks; nose and chin trying to make both ends meet; imperfect articulation, making speech difficult, and painful to listen to; isolated, elongated, irregular and fragmentary teeth, giving a carnivorous appearance to a once pleasing, smiling countenance. These are but a few of the many features that could be enumerated, to show in what a fearful condition society would be without the aid of dental art. See the changed being, once these defects are removed; the form becomes more erect, the step more lively, the action of the body more graceful, and the whole adorned with a pleasing open countenance.

Again the woman who, having become inured to the monotonous drudgery of the household, becomes sometimes careless of her personal charms, her teeth are consequently neglected; but let her become a widow, and ten to one the dentist is the first applied to, for repairs, and a new lease of life secured. A perfected symmetrical anatomy prevents the mind from seeking seclusion.

What will be the next discovery? What other new departure will be forthcoming? What will be the final? cannot be conjectured. Let us contemplate the ideal dentist of the future. The dentist formerly acquired his art in the office of his predecessor, and it was not considered necessary for him to study in any more extensive sphere. As time went on, and the lucrativeness of the calling attracted more and more able and cultured men, aspirations rose higher and higher; dentists began to demand a more extensive education, and the dental colleges were founded. I have already referred to the benefits accruing from the establishment of a dental college in this Province; every dental practitioner should be an advocate of collegiate education. He should be an open and determined champion of all that tends to elevate the status of the profession; for, by so doing, he will not only add to his own reputation, but will serve his vocation well, and guard the community from the arts of the empiric. Educate the members of a profession and you give rank and position to the profession itself. In this day of religious strife, let us hope that our graduates who are to be the future professors in our colleges, will devote their entire energies to develop skilful and competent dentists.

Will natural teeth continue always to be filled? or will a time come when they will be invariably restored by artificial incorruptible substitutes to or additions thereto? Will gold always be used to fill teeth? Hear what the *New England Journal of Dentistry* says about the gold supply of the world, it is computed to be about $200,000,000 every year. About $1,000,000 worth of this gold is put into the teeth of people, and as this gold is almost invariably lost from further consumption, it might not be quite uninteresting to inquire if that is right, from an economical standpoint. It will, of course, not make a great difference to us at present what becomes of the gold. The supply will be sufficient for our wants and those of our children; but the question may come up, do we not do something wrong against future generations following us, by burying every year about two tons of gold in the teeth, and finally in the earth.

The plastic filling material now in use is not durable. That a cement will be discovered superior to any now extant, I have no doubt. I had formed an idea that a substance like Portland cement might be found durable, and intend to experiment on it; but if I or some one else succeed, nothing new will have been discovered, since I find the following:

> "CLASSIC DENTISTRY.—Dr. Xavier Landerer, of Athens, sends the following to the London *Chemist and Druggist:* 'It may be safely asserted that the ancients cleaned their teeth and used tooth-powder. If the necessary attention were given, relics would be found in the graves of the women. The word *odontotrimma*, the tooth-scourging stuff or tooth-powder, is found in ancient Greek, and in the Greek Pharmacopœia is applied to tooth-powder. It is interesting to find that the ancients had made some advance in dentistry. A friend of mine (now dead) occupied himself in collecting ancient Hellenic skulls, wishing to show that they did not differ in shape from those now carried in Greece. Among several hundreds of these skulls, some, perhaps, 2,000 years old, we found two with 'stopped' teeth. One was filled with a mass as hard as stone, which, on analysis, proved to be hydraulic lime, made from volcanic ash, Santorin earth, and lime. Marvellous as it may seem, the hollow of one tooth in the other skull had been filled with gold thread or gold leaf. The metal used was pure. The skull itself, though deprived of the stopping, is now in the Archeological Museum.'"

As a caution to those who might imagine that they had discovered something new in mechanical dentistry, let me read this clipping:

"An English dentist advertises in the *English Mechanic*, 'Teeth without a visit to the dentist,' and says he has invented an apparatus (which has obtained her Majesty's Royal Letters Patent in England, also France, Germany, Belgium, America, and the Colonies, May and August, 1878), enabling persons at a distance to take the necessary impression of their own mouths, which can be forwarded by post, and the required artificial teeth supplied without a personal interview. This is a step in advance of the dental art as practised in this country.'"

The implantation of teeth was certainly a great surprise and astonishment to me; that such a process can be permanent I can scarcely believe yet, still it is being done and proving satisfactory in some cases. Wishing to astonish my hearers, I conceived the idea of suggesting the implantation of metallic bolts or pins, so that artificial dentures could be supported, with removable nuts or hinged fastenings, easily managed by the wearer. To my astonishment, I found in the *Dental Cosmos* for March last, a description *with illustrations*, of a method for implanting metallic capsules! For this same purpose, still this is old—listen:

DENTISTRY IN POLYNESIA.

"The dentists of the Solomon Islands, though somewhat heroic in their treatment, are said to be but little inferior to their European brethren. When a man wishes to have a tooth or two replaced, a couple of assistants hold him firmly, while the operator, propping the patient's mouth open with pieces of bamboo, proceeds down along the gum until he has cleared the surface of the jaw-bone. Into the cavity thus made along the gum he inserts a piece of tortoise-shell or mother-of-pearl of the requisite length, and then binds the gum up on each side of the new tooth with a kind of vegetable glue. After a few days' feeding on liquid diet, the wound generally heals; and it is a common sight to see old men with almost all their teeth replaced in this fashion."—*British Journal of Dental Science.*

Many suppose that bridge-work is something new; but it is not. The insertion of artificial teeth has been practised in China ages before it was introduced into Europe. The material used is bone or ivory, and the tooth, having been sawn and filed into the proper shape, is fastened to the adjoining teeth by a copper wire or catgut string. If two or more teeth are required, they are made in one piece and a hole drilled the whole length, through which a double string or wire is passed, which loops over the natural tooth at one end, and is tied to the tooth at the other. The cost of a single tooth will be from five to ten cents, and the charge for half a dozen would be from thirty cents to half a dollar.

May we not justly exclaim, there is nothing new under the sun? Our thoughts and conceptions are of nature and we cannot go beyond it. After exhausting all resources in mechanics and art, will the future dentist turn his attention towards the production of better natural organs? By precept and example, will he commence to repair the existing physical defects, by as much as he is capable of removing the causes that are violating nature's laws, and be satisfied to receive the gratitude of a perfect progeny?

Electricity as a Motive Power in Dentistry.

By PETER BROWN, L.D.S., Montreal.

The question of providing some motive power for the dental engine has led many inventors to investigate the merits of the electro motor, in its application to the dental engine. Electricity is coming rapidly to the front as a motive power, and the rapid strides made in its various applications have not been lost sight of by those interested in applying this wonderful agent to various uses in dentistry.

The electro motor has many advantages, strongly indicating it as the only perfect machine for applying power to the dental engine.

Prominent among these is the small space required, comparing it with other motors (as an illustration, it may be mentioned that a one H. P. motor requires a floor space of only twelve inches square); then it can be placed out of sight of the patient; it is noiseless, clean, and requires very little attention.

To dentists living in cities or towns where a supply of electric power cannot be obtained from a central power station, the use of batteries must be resorted to, but this must not be looked upon as a very great objection. Many improvements have been made in the construction and durability of galvanic cells, rendering them much more cleanly and free from unpleasant odors, and less troublesome to keep in proper order, than the form of cell heretofore in use. Batteries can be obtained to-day that will supply for a month or more, without any further attention than the addition of a little water occasionally, all the power required in operating a dental engine.

Where a supply of electricity can be taken from a power station, there is no end to the uses it may be put to in the dental office and laboratory.

With an electric motor properly adjusted to the engine, one may work through the most fatiguing operation with ease. With the foot-power it is necessary, as we know, to stand on one foot while using the engine, which is a very tiresome position in itself, but when the other foot is obliged to work the treadle of the engine, it is doubly tiresome. While with the motor you may take any position the nature of the operation will allow you, and at the end of a long day's work, you will look upon the electro motor as one of the greatest boons that modern invention and sciences have given us.

Another advantage of the electro motor is the perfect steadiness it gives the cutting instrument. There is no swaying of the body as there is when moving a treadle, and it can be run slowly without that decidedly unpleasant jar, the instrument receives every time the crank of the driving-wheel passes over the centre.

It is maintained by good authorities that one of the best methods of excavating sensitive dentine with a minimum of pain, is by the use of a very sharp bur run at a high speed. Now, in order to get a high speed with the ordinary engine we have to exert quite a little force, and in doing so the body is moved about, and the steadiness required is much disturbed ; while with the motor a speed of from 2,000 to 5,000 revolutions per minute can be easily obtained, by the simple operation of closing a switch, leaving the operator perfectly steady and at rest.

Many will object to introducing the electro motor so near to the chair, saying that it looks too much like machinery ; but were there not objections on the same ground made to the dental engine itself on its first introduction, and how many dentists are there to-day without that valuable instrument? When the advantages of the electro motor become better known among the dental profession, there will be few who will be without it.

Then there is the objection of introducing the electric current from a power station into our houses, on the grounds that it is dangerous to life and property. The dangers from this source have been very much exaggerated; the low tension current is not at all dangerous when properly insulated. We have a deadly agent in our houses now in the form of illuminating gas, and serious consequences may result from a leaky joint or improperly closed tap Yet we do not go about with fear and trembling when we use this agent in our houses. When electric wires are covered with proper insulating material, the fluid they carry is as safely confined as the gas or water in their respective pipes. The amount of knowledge required for the successful operation of electrical appliances in dentistry is not necessarily very great. Certainly, a fair amount of information will help one wonderfully out of a difficulty, and will prove valuable in successfully using electricity in practice.

This force is coming into such general favor and use, that every one should have a little general knowledge of it, which may be easily obtained from one of the numerous text-books on the subject. The time is not far distant when we shall have our houses heated, lighted and ventilated by electricity; the obnoxious gas jet will give way to the clear and steady light of the incandescent lamp, which gives us light with a minimum of heat, and does not vitiate the atmosphere of our rooms, and fill our lungs with carbon. This lamp is to be strongly recommended in making examinations of the teeth, or in operating on dark or cloudy days when the light is unsteady. With proper fixtures the lamp may be made to concentrate its light on the mouth, and also shaded from the eyes of the operator. The incandescent current may also be used to run the electric mallet, the electro cautery; and applied to a fine platinum point is the best means of drying out root canals before filling.

Packing and Vulcanizing.

By B. H. Catching, D.D.S., Atlanta, Ga.

Pack with dry heat; set the flask on the oil or gas stove, with flame turned low; turn it over occasionally. When hot enough to begin the evaporation of water from the plaster, lift the flask from the stove and turn the screws; place the reverse side to the heat when returning to the stove. A few minutes and a few turns, it is closed; the rubber is not scorched, and the plaster has been made harder. Dark joints are less liable to occur if, in connection with the dry packing, vulcanizing is done in steam.

Put in the boiler about half an inch of water; place in it a small block of wood, on which set the flask to keep it out of the water. Raise to the vulcanizing point very slowly, say forty-five minutes, at least, to reach 320°. The piece will have to be cut from the flask, as the plaster gets very hard and does not granulate after several days, as is the case with water packing and vulcanizing.

Sometimes, in packing this way, a loud exploding report is heard; be not uneasy, it is only the discharge of pent-up steam. Aside from other advantages, this method is cleanly. Keep the vulcanizing boiler scoured clean. A little dilute sulphuric acid will aid this materially.

Modelling Compound.

By J. ———, St. John's, Newfoundland.

A friend who visited me lately, and to whom I gave some of my home-made modelling composition, suggested to me to send you some samples, and hinted that the profession in Canada would like the recipe. I may say, that while I use plaster of Paris a great deal, I find many occasions to use modelling compounds, and that for pattern plates and temporary fitting of plates, I use it exclusively. The composition is as follows—but I must frankly say that it is not my own, but that I received it from a generous confrere in England some years ago:

French chalk	14 parts.
Gum kowrie	8 "
Stearine	4 "

Melt the latter first; add the second; then the chalk, not too much at a time. Stir it constantly. Color with carmine, and pour it into saucers in thin cakes.

By the way, if your proposition to form a Dominion Dental Society takes shape, count Newfoundland in, for though she isn't in the Confederation yet (but will be), she counts in the progress of dentistry in British America.

The Dental Porcelain Art.

BY W. GEORGE BEERS, L.D.S.

The following will give a fair idea of an improvement in operative practice that even in its short existence to date, has made wonderful progress, and seems destined to occupy a leading position in the art of dentistry;

It means that both children and others can have their teeth filled in a reliable manner, with durable and permanent fillings, and not have to sit in a dental chair for several hours with their mouths filled with the disagreeable rubber dams, to say nothing of the long and tedious malleting necessary to fill a tooth with gold.

It means that this new method reduces the necessity of using the disagreeable rubber dam to a few exceptional cases.

It means that all operations are not only more durable, but, most important, free from pain or fatigue either to the dentist or his patient, and that many operations heretofore not possible are brought within the range of most satisfactory results.

It means that when your teeth have been repeatedly filled with gold, and as many times given out, leaving such a small remnant of the crown that there is no more hope for the usual methods, it is then the porcelain process comes to the rescue, and provides an opportunity for the very best and most perfect work.

It means that the most thoroughly decayed, irregular and undeveloped teeth present conditions more favorable for complete and artistic work than those that are only partially decayed, and in such cases where but a few scattered teeth and roots are remaining, by means of the porcelain process, an entire restoration may be provided, filling the intermediate spaces by bridging from the sound teeth, using the latter as a support on which to fasten them, and thus avoid the necessity of wearing a plate over the roof the mouth.

It means that the rage for extracting teeth so common among men of low degree in our profession, will necessarily become unpopular, and that the men who make a wholesale business of it will have to change their practice or change their business

This class of men fail to realize that it requires the strongest steel instruments and the most powerful arm to wrench nature's pegs from thoroughly established sockets, representing a retaining means of hundreds of pounds to the square inch, and yet they will persist in destroying the very best foundation as a practical means of attaching partial sets of teeth, thus reducing the possible chance of wearing an artificial denture from hundreds of pounds to the feeble adhesion of the saliva, which at best is never more than a few ounces, so that a cough or sneeze will many times eject the entire denture from the mouth. Want of proper knowledge of the method of treating diseased teeth, and lack of skill to make the attachments on the remaining teeth, poverty and ignorance, create the demand for the man who will prefer to destroy the human face divine, and then give in return a chromo set of ready-made teeth for the munificent sum of $5.

The process of burnishing metal foil into the cavity of a decayed tooth to secure an impression, and then melting either gold, silver, or any suitable metal, or porcelain, glass, rubber, etc., into the mould, to form a solid section or plug, and the cementing the prepared section into the cavity, or amalgamating it into the cavity of a decayed tooth by means of a new combination of plastic metal that is absolutely impervious to the action of the fluids of the mouth. Also the forming of a metal jacket or overcoat of very thin metal that fits over a defective tooth and completely envelops it, and placing thereon a thin coat and a veneer of porcelain, and then placing it in the muffle of a furnace and melting the enamel so that it becomes united to the prepared jacket, which when finished forms an enamelled cap. It is then filled with plastic cement and pressed over the defective tooth, and becomes thoroughly established, thus restoring the defective organ, so that it is not only useful for mastication, but also presents the exact color and characteristic appearance of its fellow members.

Also the building up of the roots by certain methods especially adapted to this class of work. A particular plan of first lining the cavity of the tooth with an adhesive metallic foil previous to inserting fillings, crowns, etc. Certain forms of porcelain veneers and porcelain artificial crowns, to be attached to the roots of the teeth. Certain forms of gas furnaces, constructed especially for the convenient use of the dentist, that will enable him to perform operations with great facility. This, together with twelve other patented devices, all pertaining directly to the art of dentistry, are the inventions of Dr. C. H. Land, of Detroit, Mich.

The improvements contemplate methods of practice that aim especially to preserve, restore, and to save the natural teeth, provides facilities by which dentistry may be elevated from the barbaric methods of extraction, and made to assume a position in harmony with kindness and humanity.

That the long and tiresome operations of filling teeth with gold may be dispensed with, not only protecting the defective organs in a much superior manner, but also making them assume their original appearance in shape, size, and color.

It means that the setting of artificial crowns and fillings may be established with cements that are absolutely impervious to the action of the fluids of the mouth, and that they will not only be held in position with a wonderful tenacity, but, in addition, the plastic metal adheres so firmly—both to the walls of the cavity in the tooth and to the porcelain or gold section or porcelain crown—that it is utterly impossible for moisture to work between, and in case it did, the material is indestructible, so far as the secretions of the mouth are concerned.

In this new process the union of the amalgam with the glass or porcelain, exerts an adhesive force of over one hundred pounds to the square inch of surface covered. This enables the dentist to attach very thin veneers of porcelain to old amalgam fillings. Also, porcelain cavity stoppers may be made to fit into the cavity of a tooth, and then amalgamated in place and held with a wonderful degree of tenacity. Artificial crowns of porcelain may be amalgamated to the roots of teeth without the necessity of resorting to the use of pins, posts or screws, the adhesion of the amalgam being much stronger than the usual platinum pins. In connection with the amalgam no cements of any kind are used; it is strictly a metallic union, therefore absolutely impervious to the action of the fluids of the mouth.

It means that the excessive use of the ordinary silver or amalgam filling, which turn so black, may be relegated to the things of the past.

It means that the use of the ordinary white filling as a material for the attachment for crowns may be reduced to the minimum.

Our Canadian College.

Royal College of Dental Surgeons of Ontario.

The annual meeting of the Board of Directors, for the purpose of examining students and transacting routine business, was held on the 4th March and three following days. All the surviving members were present. Since the last meeting Dr. Chittenden, President, had died. The vacancy was filled by the unanimous election of Mr. H. T. Wood, of Toronto. On taking his seat Mr. Wood was also unanimously elected to the presidency, an office which he had previously filled for several years.

The Secretary presented 32 applications for final examination, 39 for intermediate, and 1 for master of dental surgery.

In view of the large number of papers to be read, it was quite clear that justice could not be done them in the limited time during which the Board usually sat. It was decided, therefore, to dispose of the papers of the final class, and take those of the intermediate class home, and make a report at a later date through the Secretary.

As usual, there were several petitions from students who had not in all respects literally complied with the requirements for admission to final examination. The only one, however, of importance was that of the son of the late Dr. Chittenden, who in the effort to preserve the practice of his father for the benefit of himself and his mother and family, had felt compelled to absent himself from lectures to a much larger extent than twenty per cent., the maximum allowed by the rules. Considering all the circumstances, and the service which Dr. Chittenden during his life had rendered the profession, it was decided to admit him to examination.

The feeling of the Board was that it would be wise in the future to have the examinations conducted by a presiding examiner, the papers sent to the examiners, and the meeting of the Board held after these had been read and valued. As, however, their term of office was nearly expired, the matter was recommended to their successors.

As most of the successful students were remaining to write for D.D.S., it was decided to have public closing exercises of the

College. The President and Secretary were appointed to co-operate with the students and faculty in the matter.

On motion of the Secretary, Messrs. Davis and Fisher were appointed a Committee to report at a future meeting on the relations of the School of Dentistry to the Board.

The Secretary reported that, in accordance with the resolution adopted at the last meeting, he had forwarded to the Secretary of the National Association of Dental Faculties an official application for the admission of the Royal College of Dental Surgeons to membership in the Association. The required documentary information was also furnished. These were promptly acknowledged by Dr. Cravens, the Secretary, and also by Dr. Abbott, Chairman of the Executive Committee, to whom they were sent by Dr. Cravens. No information whatever has been received as to the action of the Association in the matter. The Board, while feeling that it had not been treated courteously by the Association, directed the Secretary to correspond with Dr. Marshall, the present Secretary of the Association, as to the fate of the application, and if it had not been finally refused to allow it to remain for further action.

The names of those who passed the final examination will be found in report of the closing exercises in another column.

The following is the result of the intermediate examination: Passed—H. I. Stingle, J. H. Fell, A. H. Mabee, W. R. Wilkinson, O. Lillie, W. F. Corbett, E. R. Howes, J. T. Willmott, Wm. Richardson, J. A. Black, J. E. Wilkinson, S. W. Frith, M. A. Morrison, M. J. Sisley, H. Hart, D. C. Smith, H. D. Boyes, S. Anderson, H. Clarke, W. R. Winters, D. Stirton, O. W. Daly, C. H. Lount, J. J. Simon, J. McBride, Thos. Coleman, F. B. Ross, G. J. Musgrove, G. S. Martyn, C. W. F. Lennox, Thos. Irish, C. D. Greene, J. E. Holmes, T. C. Trigger. These have to take supplemental examination in October: F. R. Porter, W. H. Marrs, G. Henderson and H. E. Harris, in physiology. F. R. Porter and T. D. Fawcett, in chemistry; F. A. Lackner and W. H. Marrs, in surgery; T. D. Fawcett, in *materia medica;* H. E. Harris, in operative dentistry.

After a humorous valedictory address by Wm. Mills, L.D.S., on behalf of the graduates, Dr. J. Branston Willmott, Dean of the Faculty, delivered the following address to the class:

MR. PRESIDENT, STUDENTS AND LADIES AND GENTLEMEN:

Before entering upon the duty specially set down on the programme, permit me a word on two points.

Our lives are largely made up of events which tend to awaken emotions of sadness and sorrow, and of events which stir within us sensations of gladness and pleasure.

As we assemble here this evening there comes to many of us a feeling of sadness and sorrow as we miss the familiar form and cheerful face of him who was for many years the honored President of our College. During the year, Dr. C. S. Chittenden has ceased from his labors and entered into rest. Though in our professional and social gatherings we shall see his face and hear his kindly voice no more, his memory will long be lovingly cherished by those of us who have had the pleasure and privilege of close association with him. Among the pleasant events of this occasion is the presence with us of Dr. Beers, of Montreal, a gentleman who has long enjoyed a continental reputation as a brilliant and racy writer of both general and technical literature, and who is more widely known in professional circles, both in the Old World and in the New, than any other dentist in the Dominion.

The fact that he is here to deliver *the* address of the evening is especially gratifying, inasmuch as it assures you the pleasure of listening to an accomplished speaker, and reduces the responsibility devolving upon me to the delivery of a few parting words to the students.

And now, Mr. President, I come to the discharge of the duty to which you have called me.

Gentlemen of the Graduated Class of 1890:

On behalf of the Faculty, I return sincere thanks for the kind words to which Mr. Mills, speaking for you, has given utterance. The exceedingly pleasant relations which have existed between the members of the class, and between the class and us, during the past session, have been very gratifying to your teachers, and for them I assure you that the attendance, attention and attainments of the class have been in an unusual degree satisfactory.

Permit me to express the hope that these friendships may long continue unbroken.

"Like pilgrims on the hills of life
We cross each other and are gone."

Possibly we shall see little of each other in the future; let us hope that we will all have the kindliest recollections each of the other.

To-day you have received from the President, in the diploma which certifies your legal right to practise your profession, the first-fruits of reward for many weary days and nights of toil. You have to-night been admitted into the ranks of an honorable profession. Allow me to remind you that to your keeping that honor has to-day been committed. We send you forth to your life's work with a confidence that you will steadfastly maintain that honor. May we never have occasion to regret that even as regards one of you that confidence was misplaced.

I am reminded that this very day most of you have been writing, side by side with the students of the Medical Faculty, for the honors of our Provincial University. I desire to impress upon you that this University recognition of dentistry as a liberal profession, and the ranking of its graduates in this department with its graduates in other departments, lays upon the members of the dental profession, and especially upon those who have received a University Degree, an additional obligation to guard well its honor and integrity.

The life of a student, while not by any means free from cares and anxieties arising from various sources, is nevertheless full of hope and pleasant expectation. For you these days are over, and you are entering upon the more serious work of life. The months, it may be the years, which immediately follow entrance upon professional life are, not unfrequently, in many respects the darkest, the most trying, the most discouraging, the most dangerous of a man's whole career. Reasonable expectations are not promptly realized, visions of success fade away, unexpected difficulties are projected into the path. "Hope deferred makes the heart sick." This weary, almost fruitless waiting is what "tries men's souls" and the metal of which men are made. Upon this stage you are now entering. Happy for you if it be short, still happier for you if that trial comes not upon you. It is wise, however, for you to enter upon it realizing to the full what may possibly be in store for you, and be prepared to meet it manfully.

It is not necessary, probably, for me to exhort you to join in the Scotchman's prayer, "Lord, give us a good opinion of ourselves," but I would urge upon you to cultivate such a confidence in your ability to succeed by legitimate means as shall enable you, during this trying period of which I have spoken, to look calmly on at the unprofessional methods of your *confrères* without feeling any temptation to join in them.

When you have been duly certified by the properly constituted authority as "qualified to practise dentistry," take it for granted that an intelligent public will believe that you are "qualified," and abstain from particularizing your own attainments and advantages, for in so doing you but suggest to outsiders that you must have very grave doubts yourselves, as to your fitness for the duties you have undertaken. And in many cases, probably, the "doubt" would be very well founded.

It will not require a very prolonged study of the dental advertisements in the daily and weekly press, even of this city, to convince the inquirer that dentistry is not yet out of the mire and dirt of quackery and charlatanism. With better advantages and grander opportunities than had those who went before you, let it be your aim to help manfully and earnestly to lift it to a higher plane. Determine to achieve professional success by honorable, straightforward methods or not at all.

In a very important sense it is true that "all things come to him who waits," but he must wait in the industrious, intelligent use of the appropriate means. We exhort you, therefore, to enter upon your professional career with becoming modesty, with a patience that knows no weariness, an industry that knows no lagging, a persistence that makes no note of hindrances, a determination to succeed that recks not of failure, an integrity of purpose that knows no flinching, and if the stuff be in you, enduring success will speedily be your reward.

We have hitherto spoken only of professional success, but this ought to be regarded as a means to an end, rather than the end itself. That life may be classed as wasted which merely succeeds in accumulating wealth and assuming the importance which its possession secures. The gathering together of riches for the service of self merely is a mean, sordid and petty employment for an intelligent, responsible and immortal being. We urge you to a higher, nobler, purer ambition. That man has made the greatest success of life who has developed the most noble personal character and has brought the greatest amount of blessing to his fellow-man. As I look around the circle in which I move, the thing which grieves me is that so few young people, even those who are most serious and intelligent, give any time, or thought, or attention, to preparing themselves for service to their fellows in any capacity; every energy is devoted to making money or to preparing to make money, or to mere pleasure and amusement.

We would that you should have a higher aim, a nobler purpose. While seeking to obtain the fullest measure of success in your chosen calling, do not devote your whole time and strength to the service of self.

> "Not enjoyment, and not sorrow,
> Is our destined end or way,
> But to act that each to-morrow
> Finds us further than to-day."

Be something more than dentists; be citizens, philanthropists, Christians. The ambition to serve your fellow-citizens in some capacity is a proper and worthy one. The gratification of this ambition means self-denial, preparation, work. "Opportunity waits for the man who is prepared." All around us are opportunities for usefulness with wide open doors, waiting for the man or the woman who is prepared to enter in.

Find me a municipality whose affairs would not be better administered if citizens could be found who, with an ambition to serve their country, as councillors or aldermen, had given time and energy to preparation for this service. Where is the church that could not be more efficiently officered if men were available who had given time and care to preparation for this form of service? In the staff of every Sabbath-school, in the board of every charitable institution, in the management of every benevolent association, there are places always open to those who have fitted themselves for such work. I want to emphasize the thought that in all the infinite variety of ways in which one may serve his fellows, the "opportunity waits for the man who is prepared."

I speak to-night to young men just entering on the active duties of life, to young men whose future is in their own hands. Your position in the community in which you reside will in the years to come depend very largely upon the course which you mark out for yourselves at the outset.

Humanity, civilized, intelligent humanity, may be roughly divided into two great classes—those who are always "waiting for something to turn up," and those who have determined to turn something up, and have set more or less diligently to work to do it To which of these classes will you belong?

The great American humorist once remarked "that some men were born great, some men achieved greatness, and some men had greatness hove onto them." In this democratic country it is safe to say that in the sense in which the word is used none of you were born great. Amid the strife and competition of life you are not likely to find other men putting themselves to serious inconvenience to force greatness upon you. If, therefore, you are to rise at all in any department of life's activities above the level of your associates, it is only by persevering adherence to a well-formed purpose that such pre-eminence can be secured.

"Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait."

Other tempting lines of thought suggest themselves, but time will not permit.

And now, gentlemen of the class of 1890, as the tie which has so pleasantly bound us together during the months that are past is severed, and you go forth to carve for yourselves "niches in the temple of fame," in the fullest and best sense of the expression, we cordially bid you "*God speed.*"

Dr. W. Geo. Beers, of Montreal, delivered the closing address of the evening.

An excellent musical programme was furnished by Napolitani's orchestra.

Royal College of Dental Surgeons.

The public closing exercises were held on the evening of March 28th, in the Normal School Hall.

The exceedingly unpleasant character of the weather prevented the friends of the students attending in as large numbers as was expected.

Dr. H. T. Wood, President of the Board, occupied the chair, and after Rev. Dr. Kellogg had offered prayer, in a few words called attention to the advance made in dental education since the incorporation of the profession in 1868.

The Secretary of the Board presented the following graduates, who received from the President the Diploma of the College conferring the title of L.D.S., viz:

G. P. Allen.
J. A. Armstrong.
D. Allen Black.
Thomas Butler.
Geo. F. Belden.
M. F. Binkley.
A. Stanley Burns.
Ira Bower.
Milton Cavanagh.
J. F. W. Chittenden.
Denton Dulmage.
C. M. French.
Benjamin Gollop.
W. R. Hamilton.
J. H. Johnston.
Oliver Martin.
Archibald Milloy.
Sylvester Moyer.
William Mills.
W. D. McLaren.
Walter F. McPhee.
M. G. McElhinney.
A. F. Pearson.
William Revell.
Wesley Richardson.
M. W. Sparrow.
Jas. F. Simpson.
W. H. Steele.
W. J. Trotter.
A. W. Thornton.
F. W. Tweddle.
J. J. Wisser.

Mr. J. P. Marshall, a Licentiate of five years' standing, received the Diploma conferring the title of Master of Dental Surgery.

In the absence of the Hon G. W. Ross, who was detained by his parliamentary duties, the medals were presented by Dr. W. B. Geikie, Dean of the Trinity Medical College.

The medalists were presented by Professor Teskey:

College Gold Medalist................O. Martin.
College Silver Medalist.............D. A. Black.

Editorial.

We regret very much that some selections of Dr. Beacock, for which he claimed no originality whatever, and which, he informed us at the time, were chiefly taken from *The Practical Dentist*, appeared under the head of "Original Communications" in our two last numbers. The compilation was complimentary to our confrere, and if any blame is to be attached to any one, it is certainly not to Dr. Beacock, who was perfectly ignorant of the use we intended to make of the printed copy, which he uses to educate the community in which he lives.

A Valuable Work.

Our friend, Dr. B. H. Catching, has retired from the *Southern Dental Journal*, as editor, intending to issue annually, on subscription only, at $2.50 a year, "Catching's Compendium of Practical Dentistry," a compilation of all the practical matter of the current dental literature during the year classified, indexed, and bound in one volume. As a reference book it will be invaluable, and will be an ever handy dental library in itself. The first volume will appear in January, 1891, and will be an epitome of all the practical matter of the current year. The wonder is that no one seems to have thought of this excellent idea sooner.

The Expansion of Canada.

It is really too bad that this Dominion will grow and prosper in spite of croakers and cowards. The Maritime Provinces are waking up to the necessity for Legislative Dental Protection, and very soon their legislatures will do what Dr. A. C. Cogswell asked them to do twenty years ago—give the public and the profession mutual protection. On another page we publish the ordinances passed in British Columbia and the North-West Territories. The organization of "The North-West Dental Society," with headquarters at Regina, looks like business. It is enough to make the political croakers gnash their teeth. At any rate, if they damage them, they will find a growing army of excellent dentists where a few years' ago the population was chiefly pagan Indians. The growth of dentistry means that civilization and population have made headway. Keep it up John Bull, jun.

DOMINION

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Original Communications.

Practical Points in Operative Dentistry.

BY C. N. JOHNSON, L.D.S., D.D.S., Chicago, Ill.

MR. PRESIDENT AND GENTLEMEN OF THE ONTARIO DENTAL SOCIETY,—In preparing a paper on Practical Points in Operative Dentistry for your Society, the writer first of all looked over your programme so that he might avoid touching on any subject treated by other essayists. But the scope given the present paper by its title leads us naturally to the consideration of so many little points in practice that it will be small wonder if we at times approach the discussion of matters already introduced in the meeting. This, however, is not always an evil. Diversity of opinion on any subject is often a good spice to season a meeting and make it interesting.

The purpose of the paper is not so much to present new methods as to advocate the desirable features of methods already known but not perfectly developed by the average operator.

First, let us consider the use of the matrix. Here is an appliance which, on the one hand, has been lauded to the skies, and on the other has, with equal emphasis, been condemned to the bottomless pit. Probably the truth of the matter may be stated something like this: The matrix, properly used in skilful hands, with careful discrimination as to suitable cases for its use, and good judgment as to selection of appliance, is capable of affording the operator the greatest possible aid in the insertion of fillings in that class of cavities recognized as the most difficult ones we have to treat. With equal truth we must admit that it is an appliance which, in the hands of a careless operator, unwilling or unable to comprehend the true principles governing its use, is capable of leading to the very worst kind of failure.

A careless man will insert a more defective filling with the matrix than without it, while the man who manipulates it properly will do better work with it than without, or at least, will do the work fully as well, and with a great saving of time and labor. The matrix, if properly applied, instantly converts a complex cavity into a simple one. It provides us with a fourth wall, where otherwise we would have only three. It gives us a guide and support against which to build the filling, where without it we would have nothing but an open space with no outline to govern us. It leaves the filling in such a condition of surface and contour that little labor is required in finishing. It gives us a pocket at the conical margin into which the filling may be started without the necessity for drilling anchorage pits or grooves. The tooth at this point is usually extremely sensitive. It often occasions more pain to the patient to drill these pits than to otherwise complete the whole preparation of the cavity; and any appliance which will tend to lessen the sufferings of our patrons has at least one great point for its recommendation.

In fact, the matrix has proved such a source of comfort to the writer that he would as soon think of discarding any one of the old stand-bys of the operating case, as to attempt to practise without this much-abused appliance.

But we must not forget the dangers connected with its use. The objections urged against it have much force of logic, unless we are keenly alive to its limitations. One of the principal arguments of its opponents is that when the matrix is brought against the margin of the cavity, an acute angle is formed at the junction of tooth and matrix, into which it is difficult, or almost impossible, to wedge the gold. This often leads to poor adaptation of gold to the margins, which in turn results in failure of the filling at that point. The answer to this argument is, that no matrix should be used which is made of a thick, stiff, unyielding material. The material should be of such a nature that it will yield to the pressure of the plugger, and admit of being forced slightly away from the margin at any given point. Then the matrix should not be applied tight to the tooth. It should be sufficiently loose so that in connection with its pliability the operator will have no difficulty in carrying the gold well between the matrix and tooth, thus effectively overlapping the margins. For this purpose wedge-shaped pluggers should be used, with the outline of the point made slightly convex to conform with the curve of the cavity borders. The gold should be carried well up the sides of the cavity in advance of the centre, so that direct pressure *against* the margins may be had. By observing these precautions there will be little danger of defective margins.

Another argument often urged against the matrix is that it obstructs the view of the cavity. This holds good when the broad band matrix is used on a mesial cavity in a molar or bicuspid. This should never be done, as the matrix in that case certainly does hide the cavity. But when the matrix—no matter how broad—is placed on a distal cavity it not only does not obstruct the view, but in many cases brightens up the cavity by reflected light.

In a mesial cavity a matrix seldom is needed, except just at the cervical margin to form a pocket for starting the filling. The writer has used for this purpose broken pieces of watch-spring, which are about the required curve to fit the tooth at the neck. These are narrow and do not hide the cavity, and are held in position with a loosely adjusted wedge.

As to the kind of matrix most universally applicable, the writer has found the Brophy band matrix to work the most satisfactorily in his hands. It is quickly applied, is so thin that it can readily be passed between the teeth, and sufficiently springy to admit of being forced away from the margin of the cavity, as occasion demands.

The writer has sufficient faith in the matrix and in the dental profession, to believe that when the latter fully understands the former, there will be a corresponding alleviation of the weariness and annoyance experienced by the average operator in filling these large distal cavities in molars and bicuspids.

(Exhibit Brophy and Dunn matrices.)

Now a few words about the *hot air* in operating. Every dentist recognizes, or should recognize, the advantage of hot air in drying pulp canals previous to filling. If we get perfect dryness in a pulp canal we destroy the possibility of decomposition, and thus limit the tendency to the formation of gases or other irritants likely to cause trouble in the future. This is so well established that it is a matter of much wonder to find many dentists still filling pulp canals without due precaution in this particular.

Another instance where the writer has found it advantageous to use hot air is in opening into pulpless teeth not having a fistulous outlet. You all realize the danger of setting up inflammation in a tooth of this kind, and you are all equally aware of the tendency to trouble and sometimes to abscess subsequent to the first treatment. This is specially annoying from the fact that usually the tooth has given no pain prior to the operation, and the patient naturally lays the blame to the operator. The writer has lately almost come to the conclusion that the patient is right. In the last two or three years, in a practice where he is constantly treating teeth of this nature, he cannot remember one case where trouble has followed the opening of a pulpless tooth. The method of treatment is as follows: Flood the cavity and chamber well with an antiseptic; absorb this, carrying with it as much debris as possible. Repeat the process several times, and in short, work out all the debris as perfectly as may be without forcing anything through the apical foramen. Always keep the antiseptic in advance of the broach. After using the medicament in this way till the canals are cleaned, flow alcohol into the cavity and canals and absorb with cotton. Then use hot air on the canals for some time, after which flood again with an antiseptic, and seal the cavity, leaving a little cotton in the chamber but none in the canals. If this is done with care, the results will usually be a satisfaction to the operator and a comfort to the patient. In fact, the writer cannot remember a single case of pericementitis following a treatment of this kind since he used the hot air.

Again, where arsenic has been applied to a pulp and allowed to remain a few days, it is often found that the pulp will respond quite actively to pressure, so that it cannot readily be removed. Usually a pulp in this condition will not respond to heat, and after using hot air on it for some time it will lose its sensitiveness to pressure, and may be removed with little trouble. The drying also shrinks the pulp, and this facilitates its removal.

Speaking of sealing the cavity, brings to mind the fact that many operators are notoriously careless in this respect. In using arsenic for destruction of the pulp, or in the treatment of pulp canals prior to filling, it is a matter of much moment that the cavity should be perfectly sealed.

Where arsenic is used it is evident to every operator, that if any be allowed to escape from the cavity serious trouble will ensue; and the other fact is no less true—though not so universally recognized—that where a pulp canal is being treated, and not properly sealed against the ingress of deleterious agents between treatments, the action of our medicaments is greatly repressed if not at times entirely overcome.

The common method of sealing the cavity is by the use of sandarac varnish on cotton. To the mind of the writer there are two objections to this. First, it is doubtful if by this means the cavity is always well sealed, and second, it is a most unpleasant material to use in the mouth. When a large cavity has been sealed with sandarac and cotton for a few days, the odor on removing is exceedingly offensive. These facts have led to the almost entire abandonment by the writer, and he now uses the preparation known as Gilbert's Temporary Stopping. It is a preparation of gutta percha, with probably a large proportion of lime incorporated in it, and is the most effective and convenient sealing material on the market. It requires but little heat to soften it to the consistency of putty, and may be inserted as readily and quickly as cotton and sandarac. It is not so dense or tough as to give any trouble on removal at a subsequent sitting, and altogether is the most satisfactory material ever presented for this purpose.

Tin and gold in combination as a filling material. Much has been said and written on this subject, but it is the opinion of the essayist that the material is not used in the profession to the extent that its merits should demand. Under certain conditions it is the most desirable filling material that can be used, and the reason it is not employed more is probably due to the fact that its manipulation is not well understood by the average operator. Tin and gold should never be malleted. It should be inserted entirely by hand pressure, and even then it must not be manipulated too much. Malleting will invariably result in chopping up the material, and over-manipulation will also make it crumble. Deeply serrated points driven with slow, but vigorous, hand pressure, will produce the best results.

Now as to the cases suitable for its use. It may be used with good effect along the cervical margin of deep approximal cavities in molars and bicuspids, when gold is to form the bulk of the filling. Its advantages here are ease of adaptation, rapidity of insertion, and its tendency to prevent shock from thermal changes. It is softer than gold alone, and may more readily be adapted to the walls and margins; it can be inserted in less than half the time that gold can, and it is a poorer conductor of heat than gold, so that cavities filled with it at this point are not so liable to respond to heat or cold after filling.

Another place where tin and gold is indicated is in the teeth of children, where we otherwise would use amalgam. In the small crown cavities of molars and bicuspids, up to the fourteenth or fifteenth year, it is the best material to use. It is preferable to amalgam, because it does not change form. It is preferable to gold, simply for the reason that in many of these cases gold is out of the question, and even if gold is inserted, it will likely have to be renewed in a few years. Tin and gold is not so much affected by moisture during manipulation as gold is, and in these small cavities can be inserted as rapidly and readily as amalgam, if its manipulation is well understood. This may seem a strong statement, but it can be demonstrated.

In case the filling wears down and requires renewing in a few years, gold can then be used and the cavity will be found in better condition than if amalgam had been employed as the first filling.

The objections to tin and gold are its tendency to turn dark, and its lack of hardness to withstand mastication on large surfaces. In small cavities the essayist has had no trouble with the filling wearing away, and in the cases mentioned has found so much satisfaction from its use that he trusts the members of your Society who have not used this material will at once make its acquaintance.

The method of preparing is to place a piece of tin foil on an equal amount of gold foil, and twisting the two into a rope. A piece large enough to fill the cavity should be used, and the whole rope worked into the cavity, much after the manner in which non-cohesive gold was used by the dentists of a generation ago.

The next subject for consideration is that of *Crystalloid Gold.* The essayist is desirous of bringing this material prominently before the profession of Ontario, as it has proved a source of the greatest comfort to him in his practice. It is his belief that by its use in the cases indicated a large number of cavities now filled with amalgam may almost as readily be filled with gold to the advantage of the patient and the satisfaction of the operator.

In treating on this subject, the writer feels he cannot do better than read a short article of his published several months since in the *Dental Review.* It substantially contains his present views, and probably has not been read by any of your members.

Various forms of so-called plastic or sponge gold have from time to time been offered to the profession, but none of them has come into general use. A partial reason for this is the peculiar nature of the material, which calls for peculiar methods of manipulation not easily grasped by the ordinary operator. But probably the greatest drawback to its use by those who have studied it most, is its tendency to become granular on the slightest mismanagement.

An equal rapidity in manipulation would entail a greater waste of plastic gold than of foil or pellets. In short, plastic gold has not tenacity of fibre enough to make it work conveniently as a filling material.

But it has two desirable qualities which should not be lost sight of. It is more readily adapted to the walls of cavities, owing to the ease with which its particles—not being fibrous—will slide over each other and spread under pressure. Then again, the same characteristic conduces to an even surface on the filling, which is not always so readily obtained with the ordinary foil. It is doubtful if fillings made from plastic gold have the strength—would stand an equal strain if built into contours—that have those from a more fibrous material, but the report of operators who have had long experience with it, seem to favor the conclusion that a better surface will be retained after years of wear than with any other form of gold.

To overcome the disadvantage of plastic gold and at the same time retain its desirable qualities, Mr. R. S. Williams, of New York, hit upon the idea of enclosing between two sheets of foil, a layer of plastic gold. The foil is exceedingly thin, so it does not materially interfere with the plasticity of the material under the plugger, and yet it imparts to the mass a sufficient degree of toughness to make it work kindly.

It comes in four numbers. Nos. 1 and 2 are recommended for starting fillings; No. 3 for general and contour work, and No. 4 for use in connection with amalgam, where the latter has been placed along the cervical margin of deep cavities.

The writer has had no experience with No. 4, and very little with No. 3; but for starting fillings Nos. 1 and 2 come nearer being the ideal filling material than anything that has ever been offered the profession.

If it is not used in every office where gold fillings are inserted, it is because its good qualities are not recognized, or its proper manipulation not understood. From reports concerning its use it is feared that few operators handle this gold properly. It should never be used in flat pieces cut from the pads as we get them from the manufacturer. The layers of foil on the outside are so thin that used in this form they are liable to be punctured or torn, when immediately we have the same difficulty as with ordinary plastic gold—a crumbling of the material which makes it very unsatisfactory. One or two experiences of this kind are enough to discourage the operator, and it has too often been thrown aside without realizing that the fault was in the manner of working instead of in the material.

To properly start a filling with crystalloid gold one should note the kind of cavity to be filled and prepare the gold accordingly. If a small, round, "well shaped" cavity—often the most difficult in which to secure a firm foundation—a strip should be cut from the gold somewhat wider than the depth of the cavity. This should then be rolled quite tight until the pellet is so large that—standing on its end—it will fit snugly into the cavity. A plugger with point nearly as broad as the area of the cavity, and having shallow serrations, should then be used and the whole mass driven into place with hand pressure. If used in this way the gold will in every instance stay firmly impacted in the bottom of the cavity, and will not roll or tilt when other gold is added to it. An ordinary crown cavity in a molar or bicuspid—especially the upper—is more than half filled by this one pellet, and with the assurance that adaptation is good if the force is properly applied.

Tests made out of the mouth show that crystalloid gold under pressure will conform to surfaces which are very uneven, and the firmness with which it is anchored in the bottom of an ordinary cavity proves that it must fit the walls accurately.

If the cavity is a proximal one in a molar or bicuspid, the strip should be cut sufficiently wide to reach across the floor of the cavity from buccal to lingual wall. It should then be rolled large enough so that when laid lengthways in position it will cover well the cervical margin, and admit of being wedged firmly into place with broad pointed pluggers. Pressure should first be directed on one end of the pellet toward the cervico-buccal, or cervico-lingual corner, and then—though this is not always necessary—that end may be held firm with an instrument in the left hand, while the other is driven into place in the opposite corner.

There is not the same tendency for this gold to curl up after being condensed as with other forms, and if enough material is used to cover well the bottom of the cavity, and a broad plugger which will carry the mass before it instead of puncturing it, the feat of starting a filling in almost any cavity is rendered extremely simple.

This certainly cannot be said of ordinary gold, for although non-cohesive gold has been advocated for this purpose as being all that was desired, the fact is that we have found a large discrepancy between the theory and the practice. Non-cohesive gold will not in all cases stay where it is placed, and while much preferable to cohesive in this respect, it cannot be compared with crystalloid.

The main point, then, in starting a filling with crystalloid is to roll it carefully into pellets of proper size, which lessens the tendency to crumble. When rolled in this way it makes a tough, putty-like mass, which when manipulated with broad pluggers will prove a great comfort to those who have had difficulty in making the first portion of a filling firm.

The convenience of having pellets on hand has led the writer to roll up a variety of sizes during spare moments, thus saving time at the chair.

Of course, the gold should never be annealed for starting the filling, but if No. 3 be used for completing the operation it requires annealing to a red heat.

As has been intimated, the writer's experience with the latter has been too limited to express an opinion. His preference yet is for the ordinary foil or pellets in the bulk of the filling, but for finishing, the No. 3 crystalloid laid flat instead of rolled into pellets, and firmly malleted, makes a much more even surface than ordinary foil; and if time proves it to wear well, it certainly will be preferable for this purpose.

To those who have not used crystalloid, the advice is to give it a careful trial, and the hope is expressed that it will prove as great a satisfaction to others as it has to the writer.

And now a few words about *filling teeth with gold.* Here, again, the essayist will crave your indulgence to read an editorial written by him on this subject, and published in the same journal.

This is one of the oldest subjects to be found in our periodical literature, and yet one with probably greater possibilities than any other which the profession has ever written upon. Filling teeth with gold has something of interest in it for the operator, for much of his success in practice depends on his ability to properly perform this operation.

The difficulties encountered by many in the manipulation of gold result largely from a failure to study the peculiarities of the material. Lack of comprehension regarding its capabilities and limitations lead many an operator into serious error, even when he may be an expert in the use of instruments. The one great point to be borne in mind in filling with gold is, that the ordinary forms of foil, or pellets, as we receive them from the depots, will condense only in the direction toward which the force of the plugger is applied. The so-called spreading of gold is a myth, so far as most of the gold we use is concerned. A good fibrous gold will not spread under the instrument, to any appreciable extent, and any gold which is granular enough to do this is unreliable when the wear and tear of mastication is brought to bear upon it. Gold of this nature may be used in the bottom of cavities to start fillings, but should never be built out to a point where there is any strain placed upon it.

The main requirement, then, for perfect adaptation is to direct the pressure *against* the walls of the cavity. This cannot always be done successfully with the mallet blow, especially in cavities difficult of access, and where nothing but a curved instrument will reach all points. Wherever force is required at an angle diverging much from the shank of the plugger, hand pressure may be used to better advantage than a blow from the mallet. It seems to be a matter of habit with some operators to use the mallet indiscriminately in all regions and at all times. This mallet mania has done much harm, not only in preventing perfect adaptation along difficult walls, but also in chipping delicate margins of enamel. Small pin-head cavities can often be filled as rapidly and to much better advantage with hand pressure, and in all proximal cavities the cervical margin may be covered just as effectively and with greater safety in this way than by mallet force.

When hand pressure is used the best results in adaptation may be obtained by carrying the mass of gold in front of the instrument to the position where it is required, and then directing the force with a tilting or wrist movement, laterally as well as directly—a sort of "insinuating" force which will work the gold into every minute corner. This method is a half-wedging, half-condensing process which, when intelligently carried out, insures good adaptation with little danger to the margins.

Probably the point where the greatest number of gold fillings fail will be found along the wall which stands nearest the operator; as, for instance, the lingual wall in a distal cavity of a left lower molar, the anterior lingual wall of a grinding surface cavity in the same tooth, or the anterior buccal wall of a grinding surface cavity in a right lower molar. These are the walls which look away from the operator—walls which he cannot see without the mirror and against which he cannot impact the gold with direct pressure. It would be a poor operator, indeed, who did not get good adaptation against walls which face him, but with these hidden places in the cavity it is quite another matter. There is only one certain method of gaining perfect adaptation at these points, and that is by the use of right-angle pluggers manipulated with vigorous hand pressure. In that way an operator can "pull" the gold against the wall and by working with the mirror can be sure of his filling as he goes along. A strong plea is here made for the use of right-angle pluggers for this purpose, with the belief that if used conscientiously, there will be fewer failures to record in this class of cavities. The handles of the plugger should be large so as to admit of firm grasping in the hand when in use.

Much as we have just said in favor of hand pressure, we do not wish to discountenance the mallet. Used judiciously it is one of the greatest aids to gold filling, and we have one point to mention whereby it may be employed with more comfort to the patient than is ordinarily the case. From the time the mallet is started on the filling it will prove of great benefit to hold an instrument in the left hand with the point firmly placed on the gold or on some portion of the tooth, to steady it during the operation. If left to itself the tooth at each blow from the mallet will be slightly forced in and out of its socket, and this continued irritation sets up an inflammation which renders the operation extremely painful as it nears completion, where heavy malleting is necessary. If held firm by an instrument much of the soreness is avoided, and the operator is enabled to make a hard surface to his filling without too much protest from the patient.

Another point: When operating on the teeth of the left side—especially the lower ones—it will often bring the work under better command, if the operator will step to the left side of the patient. In this position he can condense against walls which, while he was on the right side, was difficult of access. In fact the dentist should change his position at the chair as often as is practicable, not only for the purpose of better reaching his work, but to give his body needed relief from too long-continued standing in an unnatural attitude. When a cavity on the left side of the mouth proves wearisome, try the experiment of moving to that side of the patient and see if matters do not work better for the change.

In addition to the foregoing, the essayist would like to say a word about the finishing of gold fillings.

In using the sand-paper disks on proximal fillings in molar or bicuspids care should be taken not to dress the filling away too much at the point of contact with the adjourning tooth. Leave it round and full at this point so as to retain the contour. The disk may be pressed in at the neck and made to cut at that point by directing it with a thin instrument held in the left hand.

To prevent the disk from heating smear it with perfumed vaseline. This will lubricate it so it will not be likely to catch in the rubber dam, and will also make it pliable and tough. Oil is sometimes used for this purpose, but is more liable to fly from the disk and soil the clothing. If vaseline is used the filling will not be heated by friction, and this applies as well to sand-paper strips for anterior teeth as for disks. This is an item which, if followed, will save much pain and annoyance to the patient.

In conclusion, your essayist wishes to disclaim any attempt to treat in detail the points considered in the paper. The nature of the subject would necessarily preclude such a course, and it has been his main purpose to present as briefly as possible some of the many points pertaining to operative dentistry which have proved of peculiar interest to him in his practice.

His greatest hope is that you may enter freely into a discussion of the subject, to the end that new views may be brought out, and that the occasion may result in benefit to every member of your Society.

How to Treat Close Bites.

By R. E. Sparks, L.D.S., Kingston, Ont.

We often meet with cases where we are called upon to replace teeth which have been long out, and where the lower teeth have become elongated by a lack of antagonism, and bite very close to the upper gum. This is particularly noticeable in the case of incisors, where one or more may have been lost. Suppose a case. A rubber plate is desired, and the question under consideration is, how can we attach teeth to the plate sufficiently firm to stand ordinary use and allow the bicuspids and molars to antagonize? My plan is as follows: I select a flat back tooth, if possible; if not, ordinary rubber teeth, and grind off the shoulder, making them flat-backed. I then back them with gold plate, or, if for any reason I do not care to grind off the shoulder, with platina, burnishing it to the uneven surface of the back. I then cut a clinger long enough to reach from the tooth which I wish to attach, back into the plate far enough beyond the articulation for a good attachment. A few holes are punched throughout the length of the clinger, except at that point opposite the articulation, where the greatest stress is brought to bear, and where the least thickness of material can be used. The clinger is then bent to approximately follow the shape of the gum and palate, and attached to the tooth by means of a little wax, keeping it up slightly from the cast that a little rubber may press under it. I then remove it and invest in a little plaster and asbestos, and flow solder sufficient to make a strong attachment between tooth and clinger. After pickling for a short time in dilute sulphuric acid to remove borax and discoloration from soldering, the backing may be filed, or ground and polished. It may then be replaced upon the cast and treated as any other tooth. When packing, it is well to draw out a little rubber thin, and slip it under the clinger to ensure a good attachment. Under favorable circumstances, the clinger and backing may be cut in one strip, bending up one end for a backing. But it frequently happens that the clinger will require to stand at a lateral angle from the backing, in which case it is necessary to make each separately. Besides, these can often be made from scraps of gold plate, none of which might be long enough for backing and clinger complete.

This plan of treatment is very little extra trouble and expense, and when its advantages are explained to the patient, will usually ensure an extra remuneration. It would save our reputation, and save us much annoyance from repeated re-attachment of such teeth.

PATTERNS FOR BACKING TEETH.

To save time and annoyance in backing teeth, punch a hole in a piece of stiff paper, sand-paper or light cardboard (I use sand-paper because it is always handy), slip it over the end of one of the pins and press it gently down upon the other pin. This gives you an impression exactly where the other hole should be made. After punching the second hole, place the paper upon the tooth and with shears or scissors trim it down to the size required. Place the tooth in position (of course, the tooth should be ground to fit before backing), and cut the pattern to fit the surface to which it is to be soldered. Then remove the pattern, lay it upon the plate calculated for backings, and mark the edges and holes. The backing can then be cut to the size and shape required, and holes punched with a certainty of being far enough up, low enough down, close enough together, far enough apart, etc., which is so uncertain without a pattern.

Celluloid Again.

By E. L. Fuller, D.D.S., Amherst, Nova Scotia.

Having noticed in your journal, Vol. I., No. 4, an article headed "Celluloid in Mechanical Dentistry," the perusal of which brings very forcibly to my mind the old adage, "We should speak well of the bridge which carries us safely over!"

If you will kindly allow me a short space in your columns I would like to say a few words in defence of a material which I have used in connection with other materials, such as vulcanite, gold, etc. (as I do not confine myself to any one material as a base for artificial dentures, but consider them all good in their place), for the past ten years, and have found it to be perfectly satisfactory not only to myself but to my patients, and I have many who have used vulcanite and celluloid, and prefer the latter; and I have yet to be convinced (and by sounder argument than the writer has laid down in his article, and I think I can show the unsoundness of the same later on), that it is not all that is claimed for it.

The writer commences his article by "claiming that it is the cheapest material used;" he also refers to its cheapness again by comparing it with the "cost of vulcanite." I would ask the writer if the amount of vulcanite used in packing a full upper denture costs more than a celluloid blank? how much more expense there is in vulcanizing a case than in pressing a celluloid? Is there any difference in the amount of plaster, wax, etc., used? If there is any difference in cost of material otherwise than the difference in cost of plain and gum teeth, it is so small that I do not think any of us, the writer included, would care to figure our expenditure down as fine, or that our patients would give it a moment's thought.

As to the difference in using plain or gum teeth, as far as the welfare of our patients are concerned, the matter of cost should not be taken into consideration.

The writer next states, "that if not properly made it contracts after being moulded." I do not quite catch his meaning; does he mean that if the blanks are not properly made before being placed upon the market, or that if they are not properly manipulated by us? But as he refers to the manipulation further on, I will take it for granted at this point that he means they are not properly manufactured. The writer certainly will not claim that they are all improperly made, therefore, why condemn the material as a whole because we may receive one or two poor blanks? We often have placed upon the market poor amalgams, and the consequences are poor fillings even with proper manipulation. Is this any reason why we should condemn amalgam as a filling material? or celluloid as a base for artificial dentures? I say decidedly, no.

He next says "it will absorb the secretions." If properly manipulated (and we, as professional men having the welfare of our patients at heart, will not place in their mouths work that has not been properly manipulated) I claim it will not, which I will explain (and to save time and space) by referring the writer to the directions for the proper and successful manipulation of celluloid in the pamphlet sent out with the New Mode Heater (Campbell's). I will simply call attention here to the fact that, in order to prevent the absorption of secretions, the surface of the plate must not be disturbed after removing from the flask.

He next continues his condemnation under two headings, viz., "Advantages and Disadvantages of Celluloid." I fully agree with him as to the advantages named, but there are a few which he has neglected to mention, and which are of no less importance.

They are first and, I think, the more important, the color which, when compared with the natural gum, is not excelled by any of our manufacturers of porcelain gum teeth, or pink vulcanite. He refers to the color as being "preferable to vulcanite," but claims under the head of "disadvantages" that it is a "very poor imitation of the beautiful porcelain gums." I do not think it was the intention of the manufacturer to imitate the porcelain gums, but to give us a material which would be more natural, and in connection with which we could use plain teeth, thereby enabling us to make a more natural-looking denture than could be done with gum teeth. Second. Its strength when compared to vulcanite. Has the writer ever had a celluloid plate returned to him broken in halves or cracked? I doubt it. Under the head of "disadvantages," the writer says, "that without careful manipulation misfits are frequent." I take it for granted that he speaks from practical experience, and if such is the case then he admits that if carefully and properly made we would have no misfits. Surely he will not admit that he does not carefully manipulate all his work, but, that his argument condemns the operator, or his carelessness of manipulation, and not the material, is plain to be seen. He next says, it is "often porous." I will not contradict him on this point, other than to say, that in my experience with it I have never seen a porous celluloid plate, but perhaps he has; I should like to ask, however, what caused it to be porous? He says, it is not only "easily warped when being made, but by extreme heat, sometimes tea or coffee." If allowed to get stone cold before being removed from the flask it cannot warp, and if not allowed to do so it has not been properly manipulated (again the fault of manipulation and not material). In regard to extreme heat, it takes water at 212° F. to spring a blank so that it will remain sprung. Has the writer any patients who take their tea or coffee at that temperature?

He says, "the teeth do not hold as well as vulcanite to the pins." I do not see that his comparison has anything to do with celluloid, as he has simply compared the strength of teeth, and not celluloid, with that of vulcanite in their hold to the pins; but that celluloid will hold as well to the pins as vulcanite, I know from experience. He next says, "it is no use for gum teeth." I suppose he means to be used in connection with gum teeth. I have used it in connection with gum teeth with very good results, although I prefer the plain teeth, and think they should be used with it.

He states, under the head of advantages, that the camphor taste disappears if the plate is properly manipulated, in which I fully agree with him. He then says, the camphor taste is so objectionable that you must immerse in alcohol at 95° over proof for four days before inserting, in which case, according to the writer's previous statement, the plate could not have been properly prepared (again the fault of the manipulation and not the material). I have never found a patient yet who claimed the camphor taste remained in the mouth over forty-eight hours. He claims that there is "fraud" practised upon the public by men whose "only idea in the profession is to make money." I agree with him, that there are such men, but that they should be classed as members of the profession? No.

He also says, "that very high fees are charged for what is very inferior work." I also agree with him in that, but summing up the writer's article, I find in nearly all his arguments against celluloid, the fault is entirely with the manipulation and not the material, therefore the work is inferior, but not the celluloid. I do not claim that it is the best material for artificial base, but that it has its place in our laboratory, and when used in its proper place is far from deserving the condemnation the writer has given it ; and I am not surprised, after his arguments, that he should be ashamed to say that it was the best material, but am surprised that he should so openly condemn a material in the manipulation of which he is at fault; and because he has not been successful is no reason why he should condem it when, no doubt, some others like myself, who understand its manipulation, have been successful.

[In order not to extend a controversy which we consider useless, we append to Dr. Fuller's article, two of many such authoritative replies received by Dr. Globensky, with which the latter is content to leave the matter. ED. D. D. J.]

CHICAGO, January 14th, 1890.

S. E. GLOBENSKY, L.D.S., Montreal.

DEAR SIR,—In reply to your's of the 10th inst., in regard to celluloid. It is something very unusual to find a dentist who still makes use of it for a base. It is so much the inferior of vulcanite, except in the one point of color, that I do not endorse it at all.

Respectfully yours,

G. A. THOMAS.

CHICAGO, June 23rd, 1890.

DEAR DOCTOR,—In reply to the query about celluloid, will say that I used it almost exclusively instead of rubber for five years, and becoming thoroughly disgusted with it, abandoned it entirely; and now feel quite ashamed when a patient comes in wearing one of the cases which I formerly made. I consider it the worst material ever used in the mouth.

Yours truly,

L. P. HASKELL.

I know of no one who uses it here.

Adhesion vs. Atmospheric Pressure.

By E. A. Teskey, L.D.S., St. Thomas, Ont.

Having had considerable inquiry for information regarding the adhesion theory, which I, in common with many others, believe offers the best explanation of the retaining force of artificial dentures, and having received an invitation to contribute to the DENTAL JOURNAL, I venture to offer this short explanation, setting forth some of the arguments why it is preferable to the old theory of atmospheric pressure. Adhesion is an attraction which all bodies possess for one another when brought in contact, and accounts for friction, the wetting of a body after immersion in water, the suspension of a drop of water from the end of the finger in opposition to gravity, and the rise of water in small tubes above the level of the surface, known as capillary attraction. A familiar experiment will explain the action of this force more clearly. Place together two pieces of glass with a drop of water between them to occupy the inaccuracies of the surfaces; it requires considerable force to separate them, and you have a very clear demonstration of the attraction of adhesion. The amount of force necessary to separate them depends principally on three conditions: First, intimacy of contact; second, the area of the surface of contact; third, the direction of the opposing force, a much greater strain being required when at right angles to the plane of contact. Let us now apply these facts, and see how they coincide with our every day experiences. First, the amount of force necessary to retain an artificial denture depends upon the intimacy of contact; this no one will deny, for it sometimes requires our greatest efforts to secure a fit, therefore, it must be admitted that the laws in each case are wonderfully alike, if not the same. Second, the retaining force of an artificial denture depends largely upon the area of contact. This is corroborated by the experience of all dentists who make artificial teeth. Third, the force retaining an artificial denture is influenced largely by the direction of the antagonistic forces, which, in this case are mainly gravity, and the tension of the muscles of the mouth. What practical man will not tell you that the greater the area of the horizontal surfaces (other things being equal) the more retaining force is exhibited, consequently to what other conclusion can we arrive than that it is the same law in each case that produces the same results? Now, then, to treat the matter fairly and without prejudice, that we may arrive more readily at the truth, let us study the "atmospheric pressure theory," and learn how the two compare. It asserts that by means of an air space in the central part of the denture, from which the air is withdrawn by suction, and the pressure of the atmosphere upon the surface of the plate, is the retaining force demanded, and implies that this chamber must be air-tight, secured by the contact of the plate with the tissues that surround this space. Now, that we have somewhat of each theory in our minds, we are prepared to face difficulties with explanations from each, and to draw conclusions. Why do artificial dentures exhibit greater retaining force on soft than on hard palates? The adhesion theory answers, that on soft palates a greater intimacy of contact is secured on account of the yielding nature of the tissues, which, in a measure, compensates for the inaccuracies of the rigid plate. The air-pressure theory asserts that you cannot maintain as complete a vacuum on a hard palate as on a soft one, because the tissues do not assist in excluding the air to the same extent.

With both answers before us, we must conclude that the air-pressure theory fails from the fact that if any air be permitted to re-enter the chamber, sufficient could enter to establish an equilibrium, and atmospheric pressure ceases as a consequence. If this explanation be not correct, why is not the retaining force as great in each case? Why does a plate exhibit retaining force when there is no air chamber? Adhesion theory answers, because the maximum surface of plate has an intimate contact with the palate. The other theory has no answer; neither can it give a satisfactory explanation why it is that the retaining force does not cease when the tissues enlarge and fill the vacuum. Why is it that high V-shaped arches exhibit but little retaining force? The answer of the adhesion theory is that the opposing force, which is principally gravity, is exerted at right angles to a very limited surface on the ridge of the mouth, and the mucus furnishes a lubricant, lessening the friction in the sliding motion, which is the result of lateral tension. The atmospheric theory furnishes no answer to this difficulty, and until it does we are warranted in assuming that the adhesion theory furnishes the only explanation for the retaining force referred to.

With these facts before us, we can come to no other conclusion than that we have been misled by assuming that atmospheric pressure offered an explanation of the retaining of artificial plates, and I think I am safe in asserting that, under the conditions imposed, it is impossible to create a vacuum by withdrawing the air, or any portion of it, from the ordinary air chamber, and that this chamber, instead of being a benefit, is actually a detriment, by lessening the surface of contact. I think the foregoing is sufficient to prove that all that is necessary to secure retaining force is perfect adaptation, and in future let us know this force as adhesion, instead of the vulgar name of suction.

Replantation.

By J. W. Sangster, Sackville, N.B.

As the subject of replantation of the natural teeth has been considerably discussed in dental journals of late, I thought I would like to try it, which I did with the following treatment and results, which I copy from my note-book :

" February 15, 1889.—Patient a healthy young man, aged 18. Tooth first inferior bicuspid, decayed on crown, pulp dead, suffering from acute alveolar abscess. Removed tooth carefully, syringed socket well with first tepid water, then phenol sodique. Removed from tooth all abnormal growth, shortened root about one line, cleansed and filled pulp canal with cement, crown with amalgam, washed in tepid water and laid it down while I proceeded to syringe socket with a solution of bichloride of mercury, 1 to 500, then syringed with phenol sodique, dipped tooth in a 20 per cent. solution of carbolic acid and placed it in socket, forcing it down with some pain.

" The next day found gum and face swollen, and tooth very sore to the touch. Painted gum with tincture iodine and aconite.

" 17th. Swelling still on. Painted face outside with tincture iodine.

" 19th. Improving fast ; swelling in face nearly all gone.

" 21st. Improving. Patient eating and sleeping with comfort.

" 22nd. Still improving.

"25th. Inflammation all gone, except a little around socket. Tooth fairly firm; patient says he can masticate with it very well."

During the process of healing there seemed to be no suppuration whatever, which I attributed to the antiseptic treatment the tooth and socket received previous to replanting. From that time to the present the tooth has been thoroughly comfortable, and as useful an organ as he has in the mouth—indeed, he says he has no reason to know any difference. I don't think it quite as firm as before the replanting. While others might, by treating and filling pulp canal, save a lower tooth with abscess formed on root, I have met enough ignominious failures to have prevented me to try this, and believe the method adopted the only one by which I could have saved this tooth. The one immediately behind this one had been lost on account of alveolar abscess.

Last summer, while taking an outing at the sea-shore, I one day happened to look at the teeth of a gentleman, and noticing that the left lower lateral was in the place of the cuspid, and the cuspid in the place of the lateral, I remarked that nature had made a mistake in placing his teeth. He said it was his mother who had made the mistake, that when he was about twelve years old (he is now thirty) he had these two teeth knocked out by a kick from a horse; his mother picked up the teeth and replaced them in the position they now occupy. They are sound, strong and firm, with no distinguishable change of color from the others that had not been disturbed.

Proceedings of Dental Societies.

Eastern Ontario Dental Association.

The eleventh annual meeting of the Eastern Ontario Dental Association was held at "The Russell," in Ottawa, on the 19th and 20th of June, 1890.

The following officers and members were present: Messrs. J. A. Liddell, of Cornwall, President; J. C. Bower, of Ottawa, Vice-President; J. Robertson, of Ottawa, Secretary-Treasurer; John H. Parnell, R. E. Sparks, A. A. Smith, Geo. E. Hanna, C. A. Martin, A. Fisseault, Geo. H. Weagant, A. H. Weagant, Geo. Hutchison, C. B. Mansell, S. S. Davidson, L. Clements, W. Brace, A. Cameron.

President Liddell called the meeting to order at 8.15 p.m., after which the minutes of the previous meeting were read by Secretary Robertson, and adopted.

The following Licentiates were admitted members of the Association :

Ira Bower, proposed by J. C. Bower, seconded by J. Parnell.

D. Callendar, proposed by S. S. Davidson, seconded by A. H. Weagant.

A. F. Pearson, proposed by John Robertson, seconded by Geo. Hutchison.

W. G. McElhinney, proposed by J. Robertson, seconded by S. S. Davidson.

J. A. Armstrin, proposed by S. S. Davidson, seconded by J. C. Bower.

A. A. S. Burns, proposed by W. Brace, seconded by A. Fisseault.

A letter was read from G. J. Clint, of Almonte, regretting his inability to be present, and enclosing his membership fee.

Communications were also read from Dr. Beers, of Montreal, and Dr. Willmott, of Toronto, also regretting their inability to attend.

Dr. G. E. Hanna then gave a verbal report relative to the Ontario Dental Legislative Act, after which the Treasurer's report was received and adopted on motion of G. E. Hanna, seconded by W. Brace.

OFFICERS APPOINTED FOR ENSUING YEAR.

Dr. J. A. Parnell, of Ottawa, was nominated for President by Dr. Geo. Hutchison, seconded by Dr. Ira Bower. There being no opposition, Dr. Parnell was unanimously elected.

On motion of Dr. Hanna, seconded by Dr. Weagant, Dr. A. A. Smith, of Cornwall, was elected Vice-President, Dr. C. B. Mansell, of Carleton Place, having been proposed, but declined.

Dr. A. S. Burns, of Smith's Falls, was proposed for Secretary-Treasurer, but declined. A. T. Pearson, of Ottawa, was elected on motion of Dr. J. Robertson, seconded by Dr. Geo. Hutchison.

The retiring President, Dr. Liddell, then addressed the Association, expressing his great satisfaction on seeing so many members of the Association present, admonishing members to be workers, not dreamers; complimenting the profession on being in affiliation with Toronto University, and rejoicing over the fact that a journal devoted to dental work had been established in the Dominion.

After dealing ably with important topics, such as illegal practising of Dentistry in the Province, etc., Dr. Liddell heartily thanked the members for the honor conferred on him by electing him to the honorable position of President of the Association.

President Parnell, of Ottawa, then assumed the chair.

On motion of Dr. Sparks, seconded by Dr. C. A. Martin, a vote of thanks was tendered the retiring officers, to which all made appropriate replies.

Dr. Callendar, of Toronto, was then requested to address the Association. In doing so, Dr. Callendar forcibly brought home to each member present the conviction that it was his duty to use every legitimate means possible to elevate the standing of the profession.

Dr. C. A. Martin addressed the Association, thanking the members of the profession generally for electing him a member of the Board of Directors for so long a period, and gave a good account of the advancement made by the profession during his stay on the Board. Dr. Martin, however, felt convinced that some change in the running of the College at Toronto was necessary, and asked the members present for their views as to the changes necessary, and how such changes could best be brought about, so that he might present such views to the members of the profession present at the annual meeting, to be held in Toronto on the 14th of July.

After a lengthy discussion as to the changes necessary, Drs. Clements, Hanna, Ira Bower, W. Brace and M. S. McElhinney were appointed a committee to draft resolutions embodying the desired changes.

After due consideration, the Committee brought in the following resolutions, which were afterwards adopted by the Association:

I. Resolved, That it is the opinion of this Association that the Dental Act be so amended that the election of the Board shall take place by ballot, forwarded by mail, on a plan similar to that adopted by the pharmaceutical and medical professions.

II. Also resolved, That a member of the Faculty of Royal College of Dental Surgeons at Toronto shall not be eligible for membership on the Board of Directors.

III. Further resolved, That no medical graduate be appointed examiner unless he be in actual practice as a dentist.

On motion of Dr. Hanna, seconded by Dr. Hutchison, Dr. C. A. Martin was entrusted to lay these resolutions before the meeting to be held in Toronto in July.

The meeting then adjourned, to meet next morning at nine o'clock.

FRIDAY.

At nine o'clock, President Parnell called the meeting to order, all members being present.

Dr. Sparks, of Kingston, read a paper on "Aluminium, and its application to Dentistry." After giving source, preparation, physical properties, etc., the author gave an account of its use as a filling material and as a base. He thinks that the difficulty in its manipulation as a filling material will in time be overcome, and that it will yet be a valuable material for such purposes. He thinks, too, that by "Carroll's Method" the best results can be obtained when used as a base. Dr. Martin thinks those objectionable features it now possesses will soon disappear.

Dr. A. A. Smith read a paper on "Causes of Secondary Decay." The author thinks that improperly prepared cavities, as well as unsuitable filling material, has a great deal to do with secondary decay. He also thinks that galvanic action may lead to secondary decay. He thinks that by shaping walls of the cavity properly, and judiciously selecting appropriate filling material, secondary decay will largely be overcome.

After full discussion of these papers, in which most of the members participated, a hearty vote of thanks was tendered the authors.

Dr. McElhinney then gave an exhaustive account of the electric vibrator, as to its working and results.

Dr. Callendar gave an account of the process of porcelain filling, and its method of manipulation.

Drs. Lovejoy, of Montreal, and McCullough, of Perth, were admitted members of the Association, on motion of Dr. Brace, seconded by Dr. Hanna.

Moved by Dr. Sparks, seconded by Dr. Hanna, that the sympathy of this Association be tendered to the wife and family of our late and much esteemed member, Dr. Dulmage, and that a copy of resolution be sent the bereaved family. Carried.

The meeting then adjourned to Dr. Bowen and Armstrong's office at 1.30 p.m., where a number of important and interesting clinics were performed, after which the members amused themselves sight-seeing, to meet again at 8 p.m., at the complimentary banquet at the "Russell," given by the resident practitioners to the Association.

On Saturday, most of the members left for their respective homes, to meet next year at Brockville at the call of the President.

(Signed) A. T. PEARSON, D.D.S.,
Sec.-Treas. E. O. D. A.

Ottawa, June 21, 1890.

The Banquet.

THE EASTERN ONTARIO DENTAL ASSOCIATION BANQUET.

The banquet tendered the visitors by the resident practitioners of Ottawa took place on Friday evening, June 20th, at the Russell House. The arrangements were complete in every detail, and a most enjoyable evening was spent by those present.

Dr. Charles Martin occupied the chair, and in his usual genial and witty manner welcomed the visitors to the capital. Several of the Ottawa members, in view of the banquet, having abstained from food for several days previously, the preliminary speech-making was cut short, and the melodious strains of the orchestra, to which a goodly number of inferior maxillaries kept time, with the occasional accompaniment of a soft gurgle or a porcine murmur of satisfaction, was the prevailing condition of things. At length the spell was broken. In words rich in metaphor, and burning with the eloquence of a Demosthenes, the Chairman opened the business of the evening. Toast after toast was drunk and received response. The Queen, the ladies, the press, our brethren, sister professions, and retiring officers—none were slighted—each toast received its due, especially the ladies, for are they not the beacon star of dentistry?

The songs were of rare interest, and given with great excellence of rendition.

The merry lay of Dr. Parnell made our very mouths water, while the blood-curdling details of Dr. Smith's made the very flesh creep, and should one carping critic say that Dr. Davidson's was not quite so good as the others, that critic would be forced to admit that it was "near it." A number of the visitors having to leave early in the evening to catch their train, the company arose and gave them a royal send-off, then turned again to their fleshpots.

A most encouraging feature of the evening was the absence of wine, thus dentistry once more claims a place in the foremost rank of progress, for while occasionally at the banquets of other professions, the members are rescued from beneath the groaning board, from a dental banquet each goes home with naught but indigestion. Thus the short record of a most enjoyable evening spent, when the wild jostlings and selfish jealousies of outer life are forgotten, when each greets his neighbor with the name of brother; may it long remain in memory a step towards that universal brotherhood that shall bind all in unselfish striving for the good of all, and cement our profession and our people in one vast commonwealth of love.

ARTO.

Royal College of Dental Surgeons.

Pursuant to announcement, the tenth biennial meeting of the Royal College of Dental Surgeons of Ontario was held July 15th, in the lecture-room of the Y. M. C. A. building, Toronto. Upon motion, Dr. G. E. Hanna, of Kemptville, was elected Chairman, and Dr. A. H. Hipple, of Stratford, Secretary.

The report of the Board of Directors was read by the Secretary, Dr. Willmott, showing that during the last two years 52 students have passed the final examination of the College and been granted licenses to practise dentistry, and that the degree of D.D.S. has been conferred upon 57 candidates by Toronto University. The raising of the standard for matriculation has been found to greatly reduce the number of matriculants. Since Latin has been made compulsory there have only been 18 matriculations, while during the corresponding period previous to that there were 36. The attendance last session was the largest in the history of the College, 74 students being in attendance; but the raising of the standard is expected to reduce this to about 50 in the course of a year or two.

The Board recommended that in future the examinations be conducted upon the same plan as that pursued by the Medical-Council, so as to give the examiners more time for the examination of papers. The Board had also taken into serious consideration the advisability of improving, if possible, the efficiency of the Dental College, but had not been able to reach any definite conclusion. Upon motion, the report was received.

Dr. Rowe, Treasurer of the College, read the financial report, which showed that at the time of the last report there was a balance on hand of $2,820.27. The total receipts for the two years from examination fees, interest, etc., were $2,915.29, and the disbursements, $2,417.08, there being a net gain in two years of $498.21, and a cash balance on hand of $3,318.48. The report was received.

An informal discussion then took place in reference to the financial management of the College. Under the present arrangement the Board of Directors control the College and appoint the professors, but at no fixed salary. The Faculty receives the lecture fees and pays all expenses, including the remuneration of the professors. A resolution was introduced by Dr. C. A. Risk, seconded by Dr. A. F. Webster, to have the Board assume entire control of the finances, and pay the professors a fixed salary. The members of the Faculty present expressed a perfect willingness to enter into such an arrangement, and it was stated that a majority of the Board favored the plan also. The discussion showed very plainly that the matter is one which requires careful consideration. The fixing of the amount of salary might not be an easy matter. It was suggested by one, for instance, that the salary paid should bear the same relation to the salaries paid to the professors of leading American colleges, as the number of students in the one does to the other. This Dr. Willmott claimed would be unfair. He thought that the length of time they had been engaged in teaching, and the proficiency and experience they had thus acquired, should rather be taken into account. Then, too, it was found that some who were quite willing to have the Board take the financial management out of the hands of the Faculty, were not willing to allow themselves to be taxed in case the revenue should not be sufficient to pay all the expenses. Others again, while they favored the change, thought that the matter should not be acted upon hastily, and, upon a vote being taken, the motion was lost.

The election of a board of directors for the ensuing term was then proceeded with, the following being elected: Dr. J. B. Willmott, Dr. H. S. Wood, Toronto; Dr. R. M. Fisher, Wiarton; Dr. Geo. C. Davis, London; Dr. C. A. Martin, Ottawa; Dr. L. Clements, Kingston; Dr. C. H. Bosanko, Barrie.

Ontario Dental Association.

The first session of the second meeting of the Ontario Dental Association was held the same evening, July 15th. After the reading of minutes, officers were elected for the ensuing year as follows: Dr. N. Pearson, Toronto, President; Dr. C. V. Snelgrove, Toronto, Vice-President; Dr. C. H. Bosanko, Barrie, Secretary; Dr. A. W. Spaulding, Toronto, Treasurer.

Dr. Woolverton moved, seconded by Dr. Spaulding, that the President appoint a committee to draft by-laws and revise the constitution and code of ethics of the Society. The motion was carried, and a committee composed of the mover, seconder, and Dr. Killmer, was appointed.

Dr. Bosanko, of Barrie, having extended to the Association a very kind invitation to hold its next meeting in that town, it was unanimously decided to hold the next meeting in Barrie, commencing on the second Tuesday of July, 1891. The officers of the Society, together with Drs. Willmott, Hipple, Oakley, McLaughlin and Burt, were appointed a committee to make all necessary arrangements for the next meeting of the Society. The retiring President, Dr. Geo. C. Davis, of London, was then called upon to deliver his retiring address, a full report of which will be found elsewhere in this number. After thanking the Doctor for his excellent address, the meeting adjonrned.

WEDNESDAY MORNING.—Dr. A. W. Spaulding, of Toronto, read a paper on "Amalgam Fillings." [As this, as well as other papers read, will be published in full in some future number of the JOURNAL, it is not thought necessary to give an abstract of it in this connection. The discussions being self-explanatory appear in this report.—ED. D. D. J.] Dr. J. Frank Adams opened the discussion, taking up at length the various points in the paper. A general discussion on the merits of amalgam followed. Dr. Woolverton thought that amalgam fillings properly inserted are very useful, but the tendency is to put them in hastily and without giving sufficient attention to details. Dr. Pearson had found that many amalgam fillings break down the walls of a cavity by expansion of the filling. Dr. Killmer explained that an amalgam filling contracts in the direction of its longest diameter, and expands in the direction of its shortest diameter, which might break down the weak walls of a cavity. Dr. Johnson, of Chicago, was inclined to attribute the breaking down of the walls to other causes. He thought they usually gave way because they were left unsupported, or were trimmed down too thin. Dr. Cheesebrough thought it a good plan to start a cavity with soft amalgam, rubbing it well into all the little corners and crevices of the cavity. As the filling progressed he used more dense amalgam, the mercury gradually working to the surface. Dr. Killmer thought that there ought not to be any corners and crevices in a cavity. Dr. Willmott pointed out that if the amalgam works to the surface in one direction it does so in all, and that fillings put in in that way have free mercury at the bottom of the cavity, which gradually evaporates, leaving the fillings porous. The discussion then drifted off into a general expression of opinions respecting copper amalgam ; Dr. Woolverton was of the opinion that it should be used sparingly and cautiously. Dr. Hipple reported the case of a patient in whose mouth the use of copper amalgam had on two separate occasions caused severe odontalgia, which was relieved when the filling was removed and an ordinary amalgam filling substituted. Dr. Spaulding had had the same experience, and Dr. Ziegler said that he has a patient in whose mouth he cannot used gold, on account of the severe pain which always follows the insertion of even the smallest gold filling. Dr. Johnson said he had never had any such experience, but in several cases patients that did not know that copper had been used, had come back several days later complaining of a copper taste in the mouth. He looked upon copper amalgam as being preferable to the ordinary amalgam in the case of a nearly exposed pulp, as the former is a poorer conductor of heat. He also considered its non-shrinking qualities of great value. Dr. Willmott said that he had had considerable experience with copper amalgam. When properly manipulated he thought it gave good results, its chief advantage being that it stays where you put it. Unless the amalgam is over-heated it is not necessary to squeeze out the excess of mercury. If properly handled, Weagent's amalgam can be made to set hard in five minutes without removing any mercury, but the exact amount of heat to be used can be learned only by experience. Dr. A. H. Hipple, of Stratford, read a paper on "Implantation of Teeth." The discussion was opened by Dr. James Stirton, of Guelph. He thought the implantation of artificial teeth quite within the range of possibility. Bullets and other foreign bodies are sometimes tolerated by bone tissue, and become firmly imbedded in the same. This being the case, why should not a porcelain tooth be encapsuled and retained? Dr. Willmott said he regretted that Dr. Hipple had not incorporated in his paper the report of a case of implantation he had performed in the mouth of a little girl eight years of age. He believed it to be the first case of its kind on record. He would ask Dr. Hipple to give the Society a report of the case, and also and it to his paper before handing it in for publication.

Dr. Hipple said, that in the case referred to, the little girl fell from a desk at school and knocked out the right permanent central, which the teacher, unfortunately, ordered to be thrown into the stove. Upon examination he found that the anterior wall of the socket had been almost, if not entirely, broken away, and the gum badly lacerated. He advised implantation, and performed the operation two weeks after the accident. The child being very healthy, the continuity of the gum was by that time fully restored, and the socket filled with bone tissue. The patient was placed under chloroform, and a new socket drilled. The tooth inserted had been extracted about five years before, and had been soaking in a solution of bi-chloride of mercury for about a week. After insertion the tooth was held in place by a thin platinum cap, burnished down over the two centrals, and cemented in position. This came off at the end of three weeks, when it was found that the tooth was firm when pressure was applied in any direction but forwards. The cap was replaced and left for two weeks longer, when it was finally removed. At the end of four months the tooth was firmer than its fellow, and as useful in every way, and what was perhaps more remarkable was that at no time since the operation had the patient complained of the slightest pain.

Dr. Marshall spoke of a tooth implanted in his own mouth by Dr. Willmott, two years ago. The tooth was firm and very useful until about a year ago when the crown broke off, leaving the root, to which he intends to attach a crown. The breaking he accounted for by the fact that the tooth implanted was a cuspid ground down to the shape of a lateral, which weakened it greatly. The operation he said was painful but not excessively so.

Dr. Willmott thought that teeth intended for implantation should be kept moist from the time of extraction until used. After a tooth has been out of the mouth for some time and become dry it is very brittle, nor will it regain its original strength by being soaked in water. Just a few days before a dried tooth intended for implantation had dropped from his hand to the floor, and shivered into pieces, although the distance was not more than three or four feet.

Dr. Johnson said he was afraid that implantation was being carried to extremes. The result is not always satisfactory. Breaking of the crown is quite a frequent occurrence, and, in many cases, there is extensive absorption of the root. Under certain circumstances implantation is certainly justifiable, but care should be used in making the selection of cases.

WEDNESDAY AFTERNOON.—Dr. R. G. McLaughlin, of Toronto, read a paper on "Root Filling," which evoked a lively discussion. Dr. Cheesebrough thought that zinc chloride was not the best root filling. If the apex of a root can be hermetically sealed by means of a little cotton saturated with oil of cloves, as the essayist claimed, why not fill the whole root with cotton?

Dr. Johnson thought Providence was very kind to some operators. He didn't want the craze for filling roots with cotton to get a hold in Ontario, as it did in Philadelphia a few years ago. His plan for filling roots is to twist a little gutta percha into a cone, in such a way that grooves run from the apex to the base. By lubricating the root canal with eucalyptus oil or chloroform the cone can be easily forced to place, the fluid following the thread on the cone, and escaping at the base. He looked upon a solution of gutta percha in eucalyptus oil or chloroform as the best root filling, and he did not believe that such a filling would absorb fluids.

Dr. Willmott said that a great deal is claimed for root filling which is never realized. He did not think it absolutely necessary to fill roots to the apex, however desirable it might be to do so. To fill the buccal roots of a second molar, for instance, is perfectly impossible in nearly every case, and yet thousands of such teeth have been successfully treated and filled after the death of the pulp. What is really necessary is to either totally extirpate the pulp, or else render it thoroughly antiseptic, in which case a small portion remaining will do no harm. He favored the use of cotton as a root filling, and if used with skill, he thought the results would be as good as from the use of any other material. Let each use the material from which he gets the best results, and in the manipulation of which he has become expert. He would say, however, that he considered gutta percha, *per se*, the very worst material for root filling, on account of its tendency to absorb fluids and become offensive.

Dr. R. M. Fisher, of Wiarton, read a paper on "Anæsthetics," in which he dealt at length with their history, phenomena, and physiology. The discussion which followed was mainly in reference to the use of cocaine as a local anæsthetic.

Dr. Woolverton had used cocaine extensively and with good results. He did not inject it, but applied a strong solution to the gums with a pledget of cotton, using considerable pressure. He had never known any unfavorable results to follow its use in this way. Dr. Rose had also used cocaine with good results, but was careful in selecting his patients.

Dr. Johnson warned the members to be very careful in its use. Its action is uncertain, and not very well understood. He knew of several cases in Chicago where patients had nearly died from its effects. He himself was thoroughly afraid of it. Once when a patient came in and insisted upon having it used he rubbed a little water on her gums in the same way that he might have used a solution of cocaine, and after he had extracted the tooth the delighted patient declared that she never felt the least pain.

Dr. Willmott gave a verbal report of "Two unusual cases of oral surgery," which excited much interest. He has been requested to prepare a paper on the subject for publication in this Journal, and has promised to do so.

WEDNESDAY EVENING.—Dr. Luke Teskey, of Toronto, read a paper on "Hæmorrhage and its results." The discussion was opened by Dr. Martin, who gave a humorous and interesting report of a number of cases of excessive hæmorrhage that had come under his notice. He looked upon pressure as the most valuable means for arresting hæmorrhage in the mouth.

Dr. Clements spoke of a case in his own practice where the simple application of some heated beeswax for the sake of securing an impression of the parts, had arrested the hæmorrhage after a number of other remedies had failed.

Dr. Willmott rose to correct a false impression that had grown out of a remark, made by him in the afternoon, in reference to some of the instruments used by surgeons. He did not wish to be understood as saying anything derogatory to the ability or professional standing of any physician.

President Pearson, continuing the subject, thought that physicians should not infringe upon the domain of dentists. When a medical man undertakes to pull a tooth he makes a great mistake. Thousands of good teeth are annually extracted by physicians, which might be preserved and made useful for years, if the physician were to send the patient to a dentist instead of attending to the case himself.

Dr. Luke Teskey rose to defend the members of his own profession. He thought that physicians have a much higher regard for dentists than the latter usually give them credit for.

Dr. Willmott thought there was not so much danger of physicians trespassing upon the domain of dentists, as of dentists infringing upon the province of medical men. Dentists could make no greater mistake than in trying to perform surgical operations.

Dr. Martin thought that physicians did altogether too much tooth-pulling. They extract teeth for other people, and send their own family to the dentist. (Laughter.)

Dr. Clements said that he had always found medical men exceedingly kind and liberal. He thought it extremely unwise that anything should be said reflecting on the medical profession. The matter then dropped.

Dr. C. N. Johnson, of Chicago, read a paper on "Practical Points in Operative Dentistry," a full report of which will be found in another column.

Dr Willmott could not fully endorse the remarks of the essayist in reference to the use of matrices. He thought that only very skilful operators are likely to get good results from them. He quoted the words of an American dentist, who said, that "next to the man who never used a matrix, the happiest dentist will be the one who quits first." Unless we can make a matrix conform to the concavity at the gum margin of a cavity, we will have imperfect fillings at that most important point.

Dr. Klotz said that for some time he had been using matrices made by himself out of strips of German silver. Each of these he bent over at the middle so as to form a V shaped appliance. This he placed between the teeth and packed soft impression compound into the open space, until the soft metal conformed almost perfectly to the contour of the tooth. When the compound hardened the whole appliance became very rigid. It could be easily removed by holding a heated burnisher against it for a few moments, so as to soften the compound.

Dr. Pearson was glad that Dr. Johnson had spoken so strongly in favor of hand pressure in inserting gold fillings. He believed that gold malleting had destroyed more teeth than it had saved. After some further discussion, the subject was dropped and business resumed.

Upon motion of Drs. Hipple and Woolverton, it was resolved, that at future meetings of the Society a stenographer be employed to report the proceedings, and that the DOMINION DENTAL JOURNAL be the official organ of the Society.

Dr. Willmott moved, seconded by Dr. McLaughlin, that the committee on constitution and by-laws be allowed to report progress and sit again. Carried.

The meeting then adjourned to meet in Barrie, July 14th, 1891.

THURSDAY,—The forenoon of this day was devoted to clinics and clinical lectures, at the Dental College on Louisa street.

Dr. R. E. Sparkes, of Kingston, inserted a gold filling by hand pressure alone. He demonstrated that gold could be perfectly welded without the use of the mallet, and with much less discomfort to the patient.

Dr. C. V. Snelgrove, of Toronto, had arranged to put on a Richmond gold crown, but the patient failed to appear. He demonstrated his method of obtunding sensitive dentine by means of ether spray, very satisfactorily, however. He began by first inserting a small pledget of cotton saturated with ether, and when the pain of the cold had passed away, he followed it up with ether spray from an ordinary atomizer. In a short time the dentine was insensible to pain, and could be excavated without difficulty.

As no suitable patient was forthcoming, the fourth operation on the list, the implantation of a tooth, by Dr. Willmott, was not performed.

Dr. C. N. Johnson performed several operations. He inserted a large gold filling in the posterior approximal surface of a left bicuspid, starting the filling with crystalloid gold, using pellets for the body of the filling, and using No. 60 foil, well annealed, for the surface. He also filled an anterior cavity in an upper molar in the same way, to demonstrate the rapidity with which such a filling could be inserted. A cavity in the cutting edge of an upper cuspid he filled with a combination of gold and platinum. This he claimed makes a more desirable color than gold alone, harmonizing better with the complexion, particularly in the case of brunettes.

At one o'clock, the members of the Society practising in Toronto tendered a complimentary banquet to the visiting members, at "Harry Webb's." The committee in charge of the affair, and to whom much credit is due for its successful management, was composed of Drs. N. Pearson, F. J. Adams, C. V. Snelgrove, J. W. Oakley, A. W. Spaulding, J. B. Willmott, R. G. McLaughlin, Jesse Mills, A. H. Cheesebrough, H. T. Wood, E. Keefer and J. A. Troutman. Nearly eighty members sat down to the repast, which was a choice one. Dr. H. T. Wood sat at the head of the table, the vice-chairs being filled by Drs. N. Pearson and C. V. Snelgrove.

After the dinner, speeches were indulged in. The chairman, Dr. Wood, in a few neat remarks, welcomed the guests in the name of the city dentists and the Ontario Dental Society.

Dr. J. B. Willmott followed. An exceedingly pleasant duty devolved upon him. It was his duty to introduce to the meeting a representative of the profession from the United States, a young man whom he had first known as a most appreciative student in the Toronto Dental College. (Applause.) He did not believe there had ever been a more attentive or appreciative student in the College since its institution, than their brother practitioner from across the line. Soon after he left the College he had removed to Chicago, where he had broadened with the breadth of that interminable western country, and was now recognized as one of the brightest young men in the profession. Yet he had always remained loyal to the Toronto Dental College, and had secured the recognition of its graduates by the State Board of Illinois (Applause).

Dr. C. N. Johnson, of Chicago, was then introduced. He was deeply sensible of the kindness that had been shown him since his arrival. He hoped that the profession in Ontario would continue to make special efforts to encourage social and professional intercourse among its members. There was something about the dentists of Chicago which made him admire them above all others. They were the best set of fellows he ever met. As President of the Chicago Dental Society, he extended a cordial invitation to the members of the Ontario Society to visit them in 1893, when they come to the World's Fair. He was proud of the fact that he was a Canadian, and with all due respect to the American institutions, he had no hesitation in saying that the teaching in the Toronto Dental College was more systematic than that of any other college with which he was familiar. (Applause). He had only one fault to find with it, the students were not required to do enough practical work. Instead of having to insert three gold fillings for examination, he would like to see them required to insert at least ninety satisfactorily. He looked upon the present staff of the College as being a most efficient one, and he could see no reason why the graduates should not be the peers of any in the world, as the standard for matriculation was head and shoulders above all others.

Dr. C. V. Snelgrove then introduced Drs. Martin and Clements, of the Eastern Dental. Association.

Dr. C. A. Martin, of Ottawa, called attention to the fact that the chairman had welcomed the visitors, and given them the freedom of the city, at the *close* of the Society's meeting. He was wise. He had seen some of them before. (Laughter.) He was glad to see the various sessions of the meeting so well attended, and was particularly pleased that so many had arranged to be present at the banquet. Social gatherings, such as these, break down the little prejudices which dentists are apt to form towards each other. (Applause.)

Dr. Clements in a few well-chosen words thanked the members for the kindly manner in which Dr. Martin and himself had been entertained, as representatives of the Eastern Dental Society.

Hand-shakings and farewells were then exchanged, and the visitors left town by the afternoon trains.

Retiring President's Address—Dr. Davis.

GENLEMEN OF THE ONTARIO DENTAL SOCIETY,—I welcome you here to-day to our annual meeting, I congratulate you on the success of the Society, and I commend you for the interest you have in it's welfare, as demonstrated by your attendance. As retiring President, I have to express regret that I have not accomplished as much for the Society as you had a right to expect, and the honor of the position held by me demanded; in extenuation of my apparent neglect, I plead pressure of other business, yet my heart is in this Society and I earnestly desire its success. In the near future I shall be released from the performance of public duties for which at present I am responsible, and then, as a private member of this Society, I shall endeavor to make amends for my seeming dereliction of duty as your President. I will to-day briefly discuss some matters of vital importance to our chosen profession. Naturally we will at first speak respecting our Society and the manner in which it can be improved. As you are well aware, the late Ontario Dental Society was dissolved because it contained a few members whom the majority considered were not fit and proper persons to be members of an organization formed for the purpose of advancing the interests of the profession at large. I will here remark that I consider this move was entirely justifiable, and those members of that defunct Society who worked for its dissolution, were true, loyal and devoted members of the dental profession; it was their idea that a Society of Dentists should be formed, governed by a code of ethics which should be signed by every individual desiring membership in the same. Our Society to-day is the outcome of that movement. We have a code of ethics governing this Society which I consider should be heartily endorsed by each and every member of the dental profession.

It is a lamentable fact that our profession contains unprincipled men, whose only thought in life is the acquisition of the "almighty dollar," who care not what means they adopt, provided they can secure the patronage of the ignorant of the community. I do not mean to say that they are dishonest in the strict sense of the word, yet they adopt unfair, dishonest, and disreputable means to attract patients to their respective offices. This Society is formed primarly for the purpose of binding together for improvement and intellectual advancement those dentists who will not countenance such nefarious means of gaining a living such as I have mentioned, and who also desire that laws shall be enacted which, taken in conjunction with the hearty support and loyal sympathy of the vast majority of the profession, shall result in the building up and the perpetuation of a professional standing for dentists which will be equal, if not superior, to any other profession. Now, brethren, what can we as individual dentists, do to secure this great desideratum? We can loyally and enthusiastically support this Society. We can give the members of the Board of Directors of the Royal College of Dental Surgeons our support and sympathy in their arduous work, and we can exert ourselves to increase the membership of this Society. Considering briefly the improvement of the Society, need I impress upon you the great desirability of attending the annual meeting of this Society? You should regard this as an imperative duty; you should attend even if your presence involves great personal sacrifices. Again, respond heartily to the invitation extended to you to read papers at the annual gathering; you will be materially benefited by carefully preparing the same, and you will confer a great benefit on your auditors. Again, come prepared to intelligently discuss the papers prepared by others, "read," and be informed, and our discussions will be interesting and profitable to all. Again, see that good officers are elected to the respective offices in your gift; have live, energetic and competent men in the places of trust and honor.

Again, see how rigidly you can observe the code of ethics, do not strive to be just within the mark just sufficient to save you from expulsion. I have noticed with pain and regret that some members have not been careful in this respect. Let this slight admonition from your retiring President suffice. You know full well that we can never arrive at that standard of professional excellence for which we are striving, if we are not all, each and every one, careful of every professional act. These remarks are pertinent to the subject of advertising more than anything else. I will not speak at length on this subject, as it was ably discussed at London last year by our esteemed and respected friend, Dr. Willmott. Again, cultivate a spirit of friendliness, of good-will one toward the other, and do not reserve all this kindness, all this courtesy, for our annual meeting; exhibit it one toward the other in you daily intercourse. Be friendly, be kind, be courteous. It will not be long before we all will leave this scene of strife and turmoil, and journey to the great beyond. Many of the faces that smiled on me some eight years ago, at my first Dental Society meeting, are missing to-day. You miss some of the familiar faces that were accustomed to be present at our annual gatherings.

Should not our depleted ranks teach us kindness and courtesy to each other? Brethren, there is a living here for us all. If the majority of the dentists in your city or locality desire to have a meeting to discuss some matter of importance to them, attend the same. Do not plead press of business as the cause of your absence. Do not say that actually you have so much to do that you cannot possibly spare a moment. Your practice is so extensive that it consumes every minute of your valuable time, hence you cannot go. Be present, if you do lose a few dollars. Now, you who have extensive practices show that you respect and appreciate your less fortunate neighbors who have less. I believe in dental democracy. I believe that every dentist, so long as he lives up to the code of dental professional ethics, and is a respectable member of society, is equally as good as his neighbor. Let me impress this point on you strongly, viz., that both as a society and profession our success depended largely on the manner that our successful dentists treat those who are not so favorably situated as they are. Let me repeat this : members of this Society be kind, be courteous, be thoughtful one to the other. Do not, I beg of you, be guilty of the ungentlemanly conduct of telling how much you do. How that policemen have to keep the crowd from ruining your furniture in their mad rush to secure your distinguished services, while your dental brother across the street, with a thin, wan and pinched face, betokening poverty, watches with envious eye your success. Brethren, do not work entirely for yourself. Do a little for this Society, for your chosen profession. If you cannot take a prominent position in this Society, you can, at least, be mindful of the feelings ofthose who are professionally associated with you. There are reasons for these remarks of mine, and I trust that they will be received in the true spirit, and that much good will result from my words.

I now come to speak concerning a matter of great importance to the profession, that which is a source of anxiety to many, and respecting which there exists great diversity of opinion, viz., the establishment of a dental college. I believe that we should have a properly equipped dental college, we should possess a building which would be a credit to the profession, and that should be supplied with all the necessary appliances for the imparting of a sound, practical, and theoretical dental education; in conjunction with these essentials, the college should have a competent faculty. Given all these requirements, we would not only have students from our own Province, but from all parts of the world. How are we to secure all this? By hearty co-operation and united action after a free, calm, and unprejudiced discussion of the subject in all its details. Allow me to say that I have not one word to say in disparagement of the work performed by the Dean of the College, Dr. Willmott. No one in Canada has done so much for the profession as he. Our present professional standing is largely, if not wholly, due to his efforts. The profession are under great obligations to him, and any future arrangements that are made in regard to the College and the Faculty, cognizance should be taken of what he has performed in the past. I wish further to say that I am perfectly satisfied with the Faculty. They do their work well, they are learned, intelligent and common-sense gentlemen, and the result of each year's examination abundantly prove their fidelity to the trust reposed in them. Now this is all right for the present; but, as sensible men, should we not make some provision for the future? In the natural course of events we cannot expect to have in the future our College in the same quiescent, peaceful, and flourishing condition as at present. Is it not, then, the height of folly to have our College managed just for the present; no thought of the future? For a moment, suppose that all the Faculty desired to leave our employ, where wouldwego in search of our Colllege? If death overtook those in charge we would then be compelled to assume all responsibility. I therefore emphatically remark that the Dental College should be managed by the Board of Directors of the Royal College of Dental Surgeons that all fees should be paid to the Board, they to assume all liabilities. The time to do this is when the College is prosperous, when everything in connection therewith is in the above mentioned condition. The

Faculty should be well paid for their services, they should know what amount they are to receive as a reward for their labor. They would not be in the same feast and famine condition as at present, viz., one year prosperous, large salary ; next year unsuccessful, small salary. What do I propose? This, that the Dental College should be owned and controlled by the dental profession, acting by their representatives, the Board of Directors of the Royal College of Dental Surgeons. The Faculty should be employed by them, and be absolutely under their control. The Board should grant a sum of money towards the erection of a college building, this amount could be increased by voluntary subscriptions from the members of the profession, and each year, as per arrangement agreed upon, each member should be compelled to give a certain sum, viz., three dollars, towards this laudable object. I know that all this will involve great work and great anxiety, but I say we owe a duty to the future ; and because the College, as at present constituted, supplies present needs, there is no excuse for us shirking our duty and leaving this important matter to be settled by posterity. I would like to speak concerning the importance of subscribing to a dental journal ; all I have said *re* attending our annual meeting and reading papers will apply with equal force in this regard. Subscribe for a good dental journal, and send items of interest to be published for the benefit of the profession. I will not further occupy your time. I again thank you for the honor conferred on me a year ago when you elected me as your President. I trust you will forgive my many shortcomings ; my hope, my desire is this that this Society will prosper, that it will be a means of good to each and every member of the profession. Gentlemen, again I thank you.

Our College.

There is no denying the fact that considerable disaffection among the members of the dental profession in Ontario has grown out of the management of the Dental College. The discussions that have taken place at the last three meetings for the election of Directors show this only too plainly. It is our opinion, however, that all who took part in those discussions have the best interests of the profession at heart, and that it would not be a very difficult matter to effect an arrangement which would be satisfactory to all parties concerned, and to that end we would like to make some practical suggestions. As the matter now stands, the Board of Directors appoints the professors, prescribes the curriculum of study, dictates the length of the session and the amount of fees to be charged, and makes the Faculty a grant of $150 annually. All other matters pertaining to the management are in the hands of the Faculty. Each student in attendance at lectures pays $100 annually to the Registrar of the College, and from the sums thus received the Faculty pays all expenses, and divides the balance among its members. Now there can be no doubt that, with an attendance of over seventy students, such as there was last session, and an income of over $7,000 a year, the professors get very well paid for their services; but it must be remembered that so large an attendance is very unusual, and as the standard of matriculation has been raised, is not likely to occur again. Then, too, it should not be forgotten that when the school was first established the professors did not receive anything like a fair remuneration for their services, and a little extra pay now should not be begrudged them. While we believe, however, that the Faculty should be liberally dealt with, both on this account and on account of the excellent services they have rendered in the past and are now rendering to the profession, yet we are of the opinion that the school established by the Board of Directors, and regulated by them, should be maintained by them, and that if the profession is liberal to the school, it should know the extent of its liberality. It is true the Faculty is responsible to the Board, and the Board to the profession, but as a matter of fact the working expenses of the College are never made public, and to this fact, perhaps, more than to any other, is due the dissatisfaction of so many members of the profession. All this would be avoided if the Board were to assume entire control of the College and pay the lecturers a fixed salary. It may be said that the plan was once tried and proved a failure, the Board not being able to pay expenses. At that time, though, the attendance was small, and the expenses comparatively heavy ; moreover, the Board itself had no resources worth mentioning, and no means of obtaining help from the profession at large. Now, however, the situation is quite different. The number of students is much greater than formerly, and even after paying the professors a liberal salary, there is not likely to be a deficit. The Board has a comfortable surplus on hand of over $3,000, and by a resolution passed almost unanimously in 1888 by the members of the College, the Board was empowered to have the law so amended as to provide for the payment by all licentiates of an annual fee, for the building and equipping of a Dental School. This being the case, we can see no danger of financial failure.

Another change which we think should be made, is in the manner of conducting elections. At present a licentiate who wishes to record his vote can do so only by attending the meeting in Toronto. As a result, only a comparatively small number of the licentiates ever vote at all. Possibly if the voting was done by mail the number of votes registered would be still less, but no one could then say that he had not had an opportunity. We doubt whether there is any class of dentists that takes more interest in the elections, and would be more likely to vote, and vote intelligently, than the recent graduates, and yet they are the very ones who, under the present arrangement, can least afford the loss of time and expense attendant upon a journey to Toronto. We know that when it was proposed a couple of years ago to change the manner of voting, the proposal was voted down by a large majority. It was thought then that the advantage of meeting together overbalanced the objection. But now that we have a Dental Society which will probably hold a meeting every two years in the city of Toronto, and which will undoubtedly be well attended, there is no reason why a meeting of the College should not be held at the same time, for the discussion of business matters, even if the voting or part of it should be done by mail.

We are of the opinion, too, that the Board of Directors should be a Board of Management only, and that the examiners of the College should be appointed by them. Years ago, when the College was first established, the Directors were probably elected because of their fitness to examine candidates, but such is not always the case now. We have not a word to say against the present Board. We believe it is composed of men well fitted to fill the position they occupy, but we do say that there have been men acting as examiners in past years, whose total unfitness for the position made them appear ridiculous to the students, and caused their fellow-examiners considerable trouble. So long as we elect men members of the Board not because of their fitness to examine, but because we endorse the particular line of policy they have espoused, we are bound to have this difficulty, and as matters now stand we can see no way to remedy it ; except by having the Directors appoint examiners whose ability and fitness for the position are unquestioned.

We doubt whether it would be wise to attempt too radical changes at once. There are legal points to be settled, and some of the changes suggested would have to be made by the Local Legislature, so that time should be given to their consideration. We are in hopes, however, that some changes will be made, either in the line suggested on in some other direction, which will be satisfactory alike to the Profession, the Board and the Faculty, and which will restore harmony among the licentiates of this Province.

Editorial.

City vs. County.

One of the greatest mistakes many newly-fledged licentiates make, is rushing to the cities to settle. There are circumstances which justify some in choosing a city career in beginning; but it is a mistake to suppose that there is either less money or fame in a country practice. A beginner in the city has to compete with numerous and old-established practitioners; he has to begin with a maximum of expense and a minimum of income; he is tempted, when practice comes slowly, to cheapen his fees and lower what might become a good reputation. Unless he has capital to fall back upon, he must undergo no small share of worry in trying to make both ends meet; and at best, he frequently finds at the end of ten years, that he is financially no better, if not worse, than when he started. It has been a struggle against debt and difficulties and maintaining appearances.

On the other hand, there has been scarcely an exception to the success of young men who began in the country and the smaller towns. It is safe to say that by far the most prosperous, and certainly the healthiest, among our licentiates, have been those who hung out their "shingle" in our villages, and whose income, in spite of lower fees than prevailed in the cities, has almost invariably exceeded their outgo.

The provinces have a score of places with populations varying from 2,000 to 3,500 with no resident dentist. Nova Scotia, with its English population, has many small towns which badly need a dentist. We have repeated applications from country towns and villages for resident dentists, who will get whatever practice is to be had.

A Dentist in Parliament.

Dentists throughout the Province of Ontario, are, no doubt, glad to know that for the next four years, at least, a member of the dental profession will sit in the Provincial Legislature, as member for North Perth. Dr. Ahrens, the successful candidate, was born in the town of Berlin, in 1851, served as a student in the office of Dr. Wells, of Waterloo, graduated from the Toronto Dental College in 1878, and immediately after began the practice of his profession in the town of Stratford. As a dentist he has been very successful, and his popularity as a citizen may be judged from the fact, that he is the first liberal candidate elected in North Perth for twelve years. We trust that Dr. Ahrens, through the influence he will be able to exert as member of Parliament, will see that the rights of Ontario dentists are not infringed upon in any way, and that we shall have no more dentists licensed "by Act of Parliament."

The Ontario Meetings.

The reports elsewhere of the "Ontario Dental Association" and the "Eastern Ontario Dental Association," show that the profession in the premier Province of the Dominion is fully alive to its interests. There should be no difficulty in making this JOURNAL a monthly, if our subscribers would take the hint of Dr. Davis, "*Subscribe and contribute.*"

With reference to the death, on the 26th of April, in the office of Dr. Gendreau, Montreal, of a young man while under the influence of the vegetable vapor introduced by Dr. Mayo, of Boston, a full report will be presented in our next number. In the meantime, the feeble attempt of interested parties to blame the vapor as the direct cause, in face of the fact that it has proved itself to be the safest anæsthetic on record, and in every way much superior to nitrous oxide gas alone, has failed. As manufactured in Boston and Montreal, its effects are pleasant, deeper, calmer and safer than the purest nitrous oxide ever made.

Reviews.

A new Medical Dictionary. By GEO. M. GOULD, A.B., M.D., Ophthalmic Surgeon to the Philadelphia Hospital. A compact, concise vocabulary, handy in size, low in price, convenient for reference, authoritative, based on recent medical literature. This is not a mere compilation from other dictionaries. It includes several thousand words not contained in any other work of its size, and until the present year not in any other medical dictionary. Small octavo, 520 pages, half dark leather, $3.25; with thumb index, half morocco, marbled edges, $4.25. P. Blakiston, Son & Co., 1,012 Walnut Street, Philadelphia.

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Original Communications.

Implantation of Teeth.

By A. H. HIPPLE, D.D.S., of Stratford, Ont.

(Read before the Ontario Dental Society.)

When, a little more than four years ago, the announcement was made that it was possible to implant dried teeth, extracted possibly years before, into sockets freshly made in the jaws of healthy individuals, and that such teeth, under favorable circumstances, were not only tolerated by the surrounding tissues, but, by virtue of a union of some sort, became firmly fixed in the jaws, and as useful as natural teeth, it was received with incredulity on all sides. Many medical men said that it was impossible, because it was a distinct violation of the fundamental principles of medical science, and, of course, that settled it. A tooth that had been extracted for any lengthy period was to them a dead body, and consequently, when inserted into the jaw, was foreign matter; and living matter would not, they said, accommodate itself to a foreign body and form a union with it. They even went further, and said that dead matter introduced into the human organization was likely to cause serious trouble, because nature would not tolerate it. But the scientific dentists and the enterprising dentists, while they may have been made more cautious, were not deterred by statements such as these. They remembered that at one time, medical men, and many even of their own profession, looked upon the use of amalgams as filling materials as endangering the lives of their patients. They remembered, too, that the use of rubber as a base for artificial dentures was opposed on the same grounds ; and so, with a perfect knowledge of the anatomy of the parts to be operated on, and with all the care in the direction of perfect disinfection which modern science could suggest, they went on investigating and experimenting.

What has been the result? Hundreds of teeth have been implanted, and so far from death or serious illness being the result, in the great majority of cases the operation has been eminently successful, and the result gratifying to both patient and operator. It is true the word success must be used in a modified sense, as it may be questioned whether sufficient time has elapsed to enable a proper decision to be arrived at; but, inasmuch as teeth which were implanted more than four years ago are still doing good service, and since, too, even if at this late stage they should loosen and become useless, it would require nothing more than a slight temporary inconvenience to have them replaced by others, I think the operation may safely be said to have been a success in the majority of cases reported.

This being its past history, it is interesting to speculate as to its future. That the implantation of natural human teeth will ever take the place of artificial dentures is impossible, on account of the limited supply of suitable material; for, as dental science becomes better understood, the tendency to conservation of the natural organs is increased, and the number of healthy teeth extracted is decreased. But is it not possible that artificial teeth made of porcelain, or some other mineral material, may be so prepared that, when implanted into artificial sockets, they will be encapsuled and firmly retained? Some will say at once that this is impossible, because the presence of the pericemental membrane is necessary in order to secure union ; but the experience of Dr. Curtis, who has implanted about fifty teeth with good success, shows that even this is not necessary, for from nearly every tooth he purposely scraped away the entire periosteum without apparently endangering the success of the operation in any way.

The operation of implantation in itself is a comparatively simple one, and there is not wanting variety in the methods pursued by different operators. The simplest method known to me is to place the patient under an anæsthetic, and then, with a small trephine revolving at a high rate of speed, to cut at once through the gum and the layer of compact bony tissue which forms the surface of the alveolar ridge. The cancellous and comparatively soft tissue underlying this can be cut away with a spiral knife, and enlarged by means of a reamer until approximately of the size, shape and depth required, and which can be ascertained by trying the tooth in the socket. The latter should preferably be slightly smaller than the root, so that when the tooth is driven to position it will be firmly retained. To secure the best results, teeth for implantation should be carefully selected. Abrasion or erosion of the crown, calcification of the pulp, or softening about the neck of a tooth, makes it unsuitable for this purpose, although even such teeth have been successfully implanted. The root should be carefully examined, preferably with a lens, and if there is any sign of exostosis or absorption, or if any deposits of calculus are found, it should be rejected. Very young teeth should also be avoided, because of their faulty structure and imperfect development. In short, only such teeth should be used as are fully developed, and which were at the time of extraction perfectly healthy. The tooth should be prepared by drilling into the pulp chamber, and thoroughly cleansing the pulp canal, which should afterwards be carefully filled, the apex of the root being filled with gold, and rounded off so as to be perfectly smooth. The tooth should be thoroughly disinfected by being allowed to remain for some hours, at least, in a solution of bichloride of mercury, 1 in 1000, and the socket itself should be washed out with some germicide before inserting the tooth. As bichloride of mercury solution has an injurious effect upon steel instruments, absolute alcohol may be used for the cleansing of the socket and the final disinfection of the tooth.

After the tooth is inserted, some means should be used to hold it firmly in position until union has taken place, and for this purpose various appliances may be used. Ligatures can be employed in nearly all cases; and, in the case of bicuspids, if the occlusion is favorable, nothing more may be necessary. In the case of incisors, a very good plan is to fit a thin platinum cap to the implanted tooth and the one on each side of it, and cement it in position. Another plan which may be adopted under the same circumstances, and which renders the teeth less unsightly, is to lay a gold or platinum wire along a groove in the cutting edge of the implanted tooth and the adjacent ones, and secure it by means of gold foil packed about it. Other methods adapted to the particular cases in hand will suggest themselves to the operator, and need not be described at length, but it should be remembered that experience seems to show, that success depends largely upon keeping the tooth fixed firmly in position until the deposit of bone about it has been completed.

It is interesting to note, however, that no two operators seem to proceed in exactly the same way, and that some particular part upon which one depends largely for success, is entirely disregarded by some one else who has been equally successful. One dentist, for instance, uses only teeth that have been freshly extracted; another reports success in the case of a tooth extracted seventeen years before, and implanted in the mouth of a negro seventy-two years old. One takes care to preserve the periosteum intact; while another purposely scrapes it off. One tells us, that to insure success, the tooth should be soaked for days in an antiseptic solution; while another equally successful operator is quite satisfied with a bath of ten or fifteen minutes. One cuts off the end of the root; another leaves it on. One takes care to wash out all the little chips of bone from the socket; while another expressly states that they should be left there, because, as they contain bone corpuscles, they will form a nuclei for a deposit of bone about the tooth. And so they go on giving us conflicting advice, and at the same time reporting success, sometimes under circumstances where success could hardly be expected.

As to the changes which take place after a tooth has been implanted, there is also a great diversity of opinion. That a union of some kind takes place is beyond a doubt, but how it is brought about is not so well understood. Dr. Younger believed that the periosteum of the tooth was revivified and resumed its normal function; but, as teeth have been successfully implanted from which the periosteum has been entirely removed, this must be erroneous. Two other theories have been advanced. One is that the fibrillæ of living matter from the surrounding parts penetrate the minute openings into the cementum of the root, and that its porous structure becomes filled with living matter, a vital union being formed in this way. If the periosteum takes any part at all in this process, it is supposed to act as a leader, just as a sponge does in sponge-grafting. The other theory is that there is no vital union, but that there is a deposit of bone all about the root, and that the tooth is held mechanically.

All this teaches us that, as yet, we don't know very much about implantation ; and that there is plenty of room for interesting experiments, and careful observation of results.

But let it not be supposed from the foregoing that implantation is a simple operation which any one can perform in a slipshod manner, with reasonable hope of success. There are dangers on all sides to be guarded against. No one should attempt the operation who is not thoroughly familiar with the anatomy of the parts. Serious complications might arise from even a slight deviation from the proper course in drilling. In the case of superior bicuspids, the location of the floor of the autrum is very difficult to determine, and its perforation would be serious, and possibly dangerous. In the cuspid region the nerves are unusually large, and the vascular supply is derived from vessels which have no fixed canals, thus rendering this apparently safe region a somewhat dangerous one. In the case of centrals, unless the drilling is done slightly in the direction of the laterals, the instrument is liable to penetrate the palatal nerve canal. In the case of all the lower teeth, extreme care must be taken not to drill into the inferior dental canal, the result of which would be serious. Then, too, in preparing the tooth to be inserted, it should never be forgotten that it may possibly contain latent disease germs, and the disinfection should, therefore, be made as thorough as possible.

Knowing, however, the difficulties to be encountered as well as the dangers to be guarded against, and how to avoid them, I think that practitioners should perform the operation whenever the circumstances will justify it, and carefully note the results. By so doing, I feel confident that in the course of a few years at most, we will have arrived at the proper conclusions in reference to the scientific questions involved in this operation, and the best methods to be adopted in performing it.

Root-Filling.

By R. G. McLaughlin, D.D.S., Toronto.

(Read before the Ontario Dental Association, Toronto, July, 1890.)

I find the more experience I have in this special practice, the more I read of the subject, and the more I view it from the different standpoints, the more I am impressed with its practical importance to the dental profession; and in this short paper I cannot expect to do full justice to the subject, but hope only to point out a few landmarks, and, if possible, provoke you with whom I may differ, to a lively discussion on the matter, that we may all learn.

Certain it is, the first-essential in the treatment of these cases is a thorough understanding of the anatomy, the physiology and the various pathological conditions of the parts included.

By the title given the paper, I am freed from a discussion of the previous condition of these roots—whether or not they are the proper subjects for pulp-capping or the destruction of these pulps—and enter at once upon a consideration of the tooth with a dead nerve, whether recently or remotely made so.

Now, at the very beginning we must admit, that a rule can hardly be formulated for the treatment of this or any other pathological condition which is not subject to many exceptions; and you will agree, that the successful practitioner is the one who looks carefully over the whole field before deciding upon his mode of treatment.

To systematically discuss this subject, we must divide it into two parts: I. The varied conditions in which we find the roots and surrounding tissue; and II. Root filling proper, and the material therefor.

Under the first head we find, at least, four different classes: 1st, Freshly devitalized pulps; 2nd, Pulpless roots, causing no irritation; 3rd, A condition called blind abscess; 4th, Alveolar abscess with fistulous opening.

The first two classes will generally admit of the same treatment, and may, therefore, be discussed as one.

In these cases, the first effort naturally is to open freely into the pulp chamber, and remove as nearly as possible all parts of the contents. This is an operation which, in most cases, demands from the operator not only a considerable amount of skilful manipulating of instruments, but as well a great deal of downright, patient toil.

To do this effectually, the rubber dam should be applied whenever possible. The opening into the canal or canals should be made as liberal as the case will allow, so that a free use of the broach be made practical. Having removed whatever solid remnants there may be, I have always found it good practice to thoroughly syringe out the pulp chamber and larger canals with tepid water. This seems to thoroughly cleanse the parts, and washes away all the loose debris that otherwise is likely to be forced into the canals. Now, the next thing I aim at is, to put the canals and tubuli in a condition that they will readily absorb the antiseptic or disinfectants to be afterwards used. To this end, I dry out the canals by means of a few shreds of cotton wrapped round a broach. After wiping out all visible moisture in this way, aided sometimes by the use of absolute alcohol, I then make use of a hot-air syringe—driving the heated air right up into the canals, till the parts appear dry and hard. I now follow up with a thorough injection of my choice disinfectant—whether it be camphophenique, bichloride of mercury, or peroxide of hydrogen—I have used the first of these for some time, with a great deal of satisfaction. Dr. Atkinson thinks that the best disinfectant is produced from a grain of bichloride of mercury in an ounce of hydrogen peroxide. Now, the dental tubuli and parts having previously been so thoroughly dried out with the hot air, the disinfectant used will be readily absorbed, and all contents of the tubuli rendered perfectly harmless. Now dry out the parts once more, and the root is ready to receive the filling ; and this brings us to the subject of immediate root-filling.

Some would now say, "Seal up the crown cavity temporarily, and send the patient away for some weeks." Time will not permit me to discuss the subject in this paper, but I may be permitted to say, that so far, as a rule, I have practised immediate root-filling in such cases, and am satisfied with the results. Perhaps, in discussing this point, some of the older members can give us the necessity for or the advantages gained in a delay of three or four weeks in the completion of the operation.

In the third class under consideration, we have what is called blind abscess or confined pus at the end of root, which is generally attended with more or less pain and soreness. In such cases it is better, first, to simply wash out the pulp chamber, and by passing a fine broach into the canals, facilitate the escape of gases, and thus, at least give temporary relief. If there be merely pericemental inflammation, it may be reduced by the persistent local application of counter-irritants, such as "iodine and aconite," or the capsicum plasters. Such applications added to systemic treatment acting on the secretory organs, will aid the matter promptly and reduce the pain in almost every case to a minimum. If there be much pus, iodide of potassium, in doses of five to fifteen grains three times a day, will prove a valuable remedy. It is a powerful resolvent and alterative.

When, as soon as the tooth and patient are in a condition to be operated upon, a more thorough removal of septic matter in the canals and dentinal tubes is commenced. Here, the great object after thoroughly cleansing the parts is to force the medicine used up through the canals into the sac.

Some very successfully pump it up with shreds of cotton wound round a broach, others with a judicious use of the hypodermic syringe. In this case a very good plan is to use a strong air syringe, which, in my opinion, cannot fail to force the medicine to the farthest extremity. Here, the choice of a proper medicine is of considerable importance. We have at the end of that root an amount of confined pus, which must be gotten rid of before any progress can be made. In such a case I think peroxide of hydrogen is of especial value. It will penetrate it and cleanse it by combining with the pus gases. It swells and effervesces and thus drives out the pus. Having satisfied yourself that the medicine has indeed got there, I would seal up the cavity temporarily and send the patient away to await developments. It may be that two or three such treatments will be necessary to restore the parts to their normal healthy conditions. Here, as in other places, perseverance and judgment in every step are necessary to final success..

In the fourth class, we have to contend with an abscess and fistulus. Here the proper course is to force some such strong medicine as creosote or campho-phenique clear through the track. Having accomplished this with satisfaction, the greatest difficulty in general cases is over, and nature will, in most cases, attend to the rest. I find the easiest and most effectual method of accomplishing this is first to insert a phosphate filling in the crown cavity, leaving a small opening leading directly to the pulp chamber, just large enough to admit the fine point of a hypodermic syringe, and through this opening inject forcibly the medicine used, till you find it coming out through the fistulus opening.

One of the most successful cases of the kind I have had, was in the case of a lady about fifty years of age. I injected the track with campho-phenique, and the second day afterwards followed with a strong solution of listerine. After a space of four days I examined the case again, and granulation had set up so rapidly as not only to fill up the entire track, but to fill up and bulge out the external sac as well, so that at the first glance I thought that the abscess had returned as violently as before, but you may be sure, was agreeably surprised to find the true state of things.

Now, we come to the second part of our subject, viz.: The material for the root-filling, and the operation thereof. On the choice of material for this purpose, there is, I venture to say, as great a diversity of opinion in the profession as in any other part of dentistry. Each one appears to have his own ideal, and is prepared to stick to it with all the tenacity and doggedness of a true-born Scotchman.

Before discussing the merits and demerits of the different materials, let us look for a moment at the qualifications required of an ideal root-filling.

1. It should be as indestructible as possible, so that for all time it may perfectly occupy the space taken up by it when first inserted.
2. It should be non-porous, so as not to form a receptacle for the accumulation of gases.
3. It should be a non-irritant, so that any portion that may accidentally be forced through the apex, will be tolerated by the tissue.
4. It should be an antiseptic material.
5. It should be penetrating in its action, so that it will go to the end and soak into the tubuli.
6. It should be of such a nature so as to admit of being worked into the canals without excessive drilling.

Now, our object is to choose a material possessing at least the more important of these qualifications. We may run over a few, such as zinc chloride, gutta percha, chlora percha, gold, lead cones, saturated cotton, tin-foil, etc.

At present there seems to be a race between zinc chloride and gutta percha. Gutta percha is used extensively, and by good practitioners ; but, after all, there are serious objections to it for this purpose. It is somewhat absorbent, is to a certain extent porous, and is not an antiseptic. No doubt, one great reason why it is so extensively used is that, when made into a solution with chloroform, it is easily pumped or pressed into the canals. For my own part, I have used zinc chloride, either partly or entirely, in almost all cases with very good satisfaction. From its affinity for moisture, it will penetrate deeply and persistently into the tubuli, and, being a permanent antiseptic, will act on whatever tissue may be in with them, and render it non-decomposable. When mixed to a creamy paste, it can with facility be worked into the smaller canals by means of a fine broach. A good method in the case of inferior roots is to drop the liquid in first, and after this is worked into the canals, follow with the powder, which will be readily taken up by the liquid. But here comes the objection ; it is an irritating material, and if any, by accident, should pass through the apex, the tissue will decidedly object. Especially is this to be feared in the case of lower roots, where gravitation lends its aid. Now, what we want is something with which we can first hermetically seal this opening. Here gutta percha might be used to advantage, but in the smaller canals operators have found difficulty in reaching the end of the canal with this substance, and, besides, its porous and absorbent qualities are against its use. Gold is a good material for this purpose, but to get it there necessitates excessive canal drilling, which I consider a dangerous practice to the safety of the tooth. I find that a few shreds of cotton, saturated in oil of cloves or campho-phenique, can be carried with a fine smooth broach even into the smaller canals. If properly packed, it is practically impervious, and hermetically seals the opening, and, if necessary, can be removed more readily than any other material. Statistics given by practitioners go to show that almost universal satisfaction has been given by sealing the apicial opening in this manner. Now follow, as before stated, with the thin paste of chloride of zinc. After pressing in the paste persistently with a suitable broach, it is well to take a small pledget of cotton or piece of gutta percha and press the paste more compactly into the canals. This will insure that no vacancies are left for the infiltration of fluids, which would prove as troublesome as so much dead nerve remaining.

In substance, I may say that the successful treatment of roots depends largely, first, upon the thoroughness with which the decomposed tissue is removed or destroyed, and, secondly, upon the thoroughness with which the roots are filled, and the space previously occupied by the pulp tissue supplanted by a non-decomposable substance.

Amalgam Fillings.

By A. W. Spalding, L.D.S., Toronto.

(Read before Ontario Dental Society, Toronto, July, 1890.)

The subject of my paper is an old one, yet ever new, inasmuch as we continue to ask the question, "Why do amalgam fillings fail?" It is not my purpose to give the history of amalgam, although that might be interesting, but to enter at once on that phase of the subject which is of more immediate interest to us, viz., its practical treatment.

I do not expect to offer anything which has not been said before, but I do not think our time will have been spent in vain, if a consideration of the subject shall awaken sufficient interest to induce some one to exercise more care, and thus make better fillings. I do not impute carelessness to those present. I believe the men who take an interest in conventions, are not likely to be the sort of men who care only for the dollars they can get out of their practice; yet some point may have escaped notice in the past, which, by receiving attention, may lead to better results. We cannot expect any man to excel in every point, and it is noticeable that many of our best operators in gold make very poor amalgam fillings. The reasons for success or failure are in the attendant conditions, and if we could thoroughly understand and control these, we would be able to make amalgam fillings that would endure.

Some of these conditions are to be found in the structure of the teeth we fill with amalgam, others in the position of the cavity, difficult of access, and still others in the operation itself. It is usually chosen for teeth which are of so poor structure, or so weakened by the ravages of decay, that nothing else is available. It is, therefore, not surprising if many amalgam fillings are lost, reducing the average period of duration very low. A tooth whose structure is termed chalky, in which we cannot get clearly defined margins to the cavity, or sharp anchorages for the filling, is not of suitable structure to be filled successfully with gold; the phosphates are soluble, and gutta percha is too easily crushed out of proximate cavities; we must then have recourse to amalgam.

We begin the preparation of the cavity for any filling by cutting away, preferably with a chisel, the overhanging edge until we have free entrance. Then with spoon-shaped excavators, remove loose debris, that we may see the condition of the cavity and our work, as we proceed. If an attempt is made to excavate the cavity without thus obtaining free entrance and vision, the instrument may strike the pulp, causing great immediate pain and possibly after complication, or if the pulp be not exposed, much of the pain caused in excavating a sensitive cavity is due to causes which are avoidable. We usually find a leathery brownish layer indicating the character of decay. This must now be thoroughly removed, which is best done with spoon excavators getting under the edge and moving the entire mass with a quick motion. This usually causes considerable pain, but usually one well-directed motion so far separates the entire mass, that the further preparation of the cavity is, or can be made comparatively free from pain. The causes and prevention of this pain it is not within the purposes of this paper to discuss.

The next step is to shape the cavity and margins with greater exactness. With a suitably shaped chisel or trimmer for the margins, and spoon-excavators for the interior of the cavity, trim the margins to a right angle with the external surface of the enamel, giving particular attention to the cervical margin, if the cavity is a proximate one. Thus there are left no thin edges of enamel to crumble or of amalgam to be broken, and leave a crevice for the recurrence of caries. As amalgam is not easily forced into a fine sharp line or pit, the undercut should be made broad, as with a spoon or hoe excavator, and need not be deep, only using a drill when fastening cannot be obtained in any other way, and then using as large an one as possible.

Sharp angles are more liable to be broken than the round and broader form of fastening; thus the filling being loosened under pressure. Care is necessary to avoid wounding the pulp. Make the margins smooth with a fine corundum point or a stone, in the engine or by hand, to secure close adaptation of the filling. This may also close minute openings in the enamel which would take in by capillary attraction, such fluid substances as might cause renewal of decay. Carefully wipe out the cavity with cotton or spunk, to remove all particles which would prevent perfect adaptation. The alloy for amalgam should be such as will give hardness sufficient for the necessary pressure of mastication, non-shrinkage and retention of form in which it is made. It should also have edge strength. It is not the intention to discuss the composition of the various alloys and their relative merits. That would form material for a separate paper. The points I have mentioned are all that are absolutely indispensable.

The amalgam must not contain an excess of mercury, as that destroys the edge strength, and causes the filling to change its shape—approaching the spherical form, drawing away from the margins. All the mercury that is necessary is that quantity which will unite the particles together into a solid mass, without producing a soft surface when pressed into the cavity. There seems to be no fixed rule as to the proportions; some makers of alloys say, one of mercury to three of filings ; others, one to six. Alloys containing tin in excess of silver require more mercury, and yet are more injured by an excess than those which have less tin and more silver. With such alloys, therefore, it is necessary to use more care in the mixing. Place a small quantity of mercury in the hand, or in a mortar, and add a little of the alloy ; rub together until thoroughly united, then add more filings and rub again ; continue thus until the mass works into a powder. Thus the point is secured at which it will unite under pressure in the cavity, and at which it makes the best filling.

Whether made into discs by the use of a condenser or not, is a matter of convenience. In some positions of the cavity, it may be most easily inserted in the form of discs, and in others in powder.

Dry the cavity, and wipe out with antiseptic—creosote, oil of cloves or of peppermint—and with suitable instrument carry in the amalgam, a little at a time, and with smooth, round or flat-faced burnisher, rub into undercuts; carry in more, and repeat the pressure, and continue until the cavity is full. I never carry amalgam to a cavity with pliers and seldom with a spoon. I prefer serrated-faced steel carrier to start with, and after the first is placed I use the burnisher, with which I condense it. By touching this to the moist surface of the lip or tongue (of the patient, not your own), it will pick up the amalgam in small quantities. Thus, no time is lost in changing instruments, and so it will not be necessary to work from 8 a.m. to 8 p.m. to accomplish enough to satisfy a reasonable man.

The filling should be built on the proximate surface to the original form of the tooth, being flat or concave at the cervix, and rounded outward to knuckle against the adjoining tooth near the grinding surface, and on the grinding surface, concaved so that the lowest point is not where the filling lies against the enamel, but is in the centre of the filling, so that the action of mastication will force the food away from the line of union, and thus make it self-cleansing. We cannot lay too much stress on the proper shaping of the filling. While fresh, it should be burnished over the whole surface, and trimmed so that it will not strike an occluding tooth, that it may not displace or crack it before it is hard. It is well to polish the filling after it is hard, that any overhanging or rough points may be made smooth. I find celluloid tape excellent for proximate surfaces, and a rubber or wood cone in the engine, with pumice for grinding surface. Never burnish, lest the edges be broken, keeping in mind that the object of filling is to restore the continuity of the enamel, and is of value only as this is accomplished. Some causes of failure are too much overhanging wall, making a deep undercut into which the amalgam is not closely packed, and in which is probably left a portion of the carious substance, which may renew the decay and undermine the filling. This weak ledge, being not well supported, is easily broken by pressure; not condensing the amalgam against the margins of the cavity, thus leaving a capillary opening; leaving amalgam projecting beyond the line of the enamel, or not filling it flush. In cavities lined with oxyphosphate, the cement may come on to the enamel, and not be entirely covered with the amalgam. This line of cement will wash away, leaving an opening for lodgment of food; or, the enamel being deprived of its support, breaks.

Food allowed to lodge around and upon the teeth, affording material for the production of some form of acid, which may insinuate itself into a minute opening, which may exist notwithstanding the utmost care of the operator. The cervico-buccal and and cervico-lingual angles are weak points, and must be well looked after in preparing the cavity, or decay will recur here.

This subject is practically inexhaustible if followed into all its branchings, but this I do not propose to do. My object is rather to give the leading thoughts, which I have done briefly, as this is a much-discussed subject, and I do not wish to tire you. I hope rather to learn from the discussion which shall follow than to impart knowledge.

Closure of the Jaw due to Dental Irritation.

By W. R. Hamilton, L.D.S., D.D.S., Chesley, Ont.

It is a well anthenticated fact, that irritation in certain parts of our body acts upon the sensory nerves in that region, carrying an impulse to the brain, which, in its turn, is reflected to other organs most remote from the seat of mischief.

We meet with a common instance of transference of impressions, with regard to dental irritation, where pain in a carious tooth is referred to a sound one, even in the opposite jaw.

My attention was drawn to a condition of the above about the middle of April last. A patient came to me complaining of neuralgiac pain in the face and neck, also stiffness of the jaw, which was gradually closing. Upon examination, the mouth not capable of being opened above a finger's width, I found the entire upper teeth badly calcified and affected with caries, some being entirely decayed to the gum margin. The lower teeth were in a naturally healthy condition. After a thorough examination, I advised the extraction of the entire upper teeth, and replacement of such by a temporary denture. She having consented, this was completed in a few days, the pain ceased almost immediately after extraction, and within one month afterwards, the muscles had relaxed, and the jaw could be lowered to its normal position.

This pathological condition I feel confident to have been entirely the result of dental irritation, the teeth being in an unhealthy and continued irritable condition, acting upon the sensory or superior maxillary division of the fifth nerve, carrying an impulse to the brain, which was reflected through its motor root to the muscles of mastication, producing a contracting motor influence. I have no doubt, had this case been allowed to remain, the contraction would have become so great, that finally it would have resulted in tetanus.

Adhesion vs. Atmospheric Pressure.

BY SYLVESTOR MOYER, D.D.S., L.D.S., GALT, ONT.

Dr. E. A. Teskey's article in the July number of the DOMINION DENTAL JOURNAL under the above heading, resolves itself into: Can a vacuum be formed by the use of an air-chamber? To this Dr. Teskey replies: "I think I am safe in asserting that under the conditions imposed it is impossible to create a vacuum by withdrawing the air, or any part of it, from the ordinary air-chamber."

Certainly, if no vacuum be formed, all must agree that the air-chamber becomes a detriment; but if, as I maintain, part of the air can be withdrawn and withheld, there must be additional pressure added to the opposite surface of the plate, resulting in a more perfect adaptation to the tissues of the palate, thus still further increasing the retentive force. This needs no further remark, for Dr. Teskey undoubtedly agrees with my conclusions.

But why should there be any disagreement on the possibility of evacuating an air-chamber when the proof is so easy and convenient? Why does not Dr. Teskey do as many others as well as myself have done, experiment on his own mouth? Let him make two plates for it without teeth, and which do not come in contact with his own teeth; the one with, and the other without, an air-chamber. If he will try them both impartially, he will find that a vacuum can be formed on the one to such an extent (it is my experience) that the resultant pressure upon the tissues will be painful. Until he has made this test, he will not be in a position to decide upon the practical utility of the one method over the other, especially since his contentions are not based upon scientific principles. "Nature abhors a vacuum," and who cannot cause a thimble to remain in contact with the tongue by withdrawing part of the air?

His article also contains several other statements which, to my mind, are contrary to the experience of the great majority of dentists.

Adhesion, he says, holds together two pieces of glass when wet and in contact. If he will put them in a chamber, and evacuate the air, he will find that with the atmospheric pressure adhesion also vanishes, and the pieces fall apart.

"What practical man," he says, "will not tell you that the greater the area of the horizontal surface (other things being equal), the more retaining force is exhibited?" He appears to mean that a perfectly flat palate will more easily retain an artificial denture than a very high and narrow arch. I can scarcely believe that that is his meaning. But he again expresses a similar idea when he says, "Why is it that V shaped arches exhibit little retaining force?" If such be the case in his experience, it must be because he does not employ an air-chamber. Other dentists report a different experience.

"Why," he asks, "do artificial dentures exhibit greater retaining force on soft than on hard palates?" In using air-chambers this is true only when a plate is first put up into position, and before it has been pressed into intimate contact with the tissues, and is due to the unyielding nature of the tissues, making it more difficult to evacuate the air-chamber. But when Dr. Teskey says sufficient air can get in to establish an equilibrium, I can merely say that, theoretically, his conclusions are wrong, and, practically, he draws upon his imagination for his facts.

Again, he says: "Why does a plate exhibit a retaining force without an air-chamber?" The answer of the "Adhesion theory" given by him is certainly very incomplete. As far as he goes, I believe all dentists will agree with him, because he merely gives the conditions. Has the other theory no answer? What an insinuation! Did ever a reputable dentist claim that plates without air-chambers exhibit no retaining force? Surely not; and surely Dr. Teskey should know it. All who use and know the benefits of air-chambers claim nothing more for them than that they increase the retentive force that already exists by increasing the external pressure, and in conjunction making the adaptation more nearly perfect and thus still more retentive.

He asks why it is "that the retaining force does not cease when the tissues enlarge and fill the vacuum." Certainly, because from the intimate contact of the other parts of the plate with the tissues, and more or less from the contact of the chamber with the enlarged tissues that fill it, the air is precluded, and the atmospheric pressure to a greater or less extent prevents the plate from withdrawing from the palate. But why, if there is no suction, do the tissues enlarge and fill the air-chamber?

To his last question, "Why is it that V shaped arches exhibit little retaining force?" I can merely reply as before, because an air-chamber is not used. I never heard such an idea advanced, and Dr. Teskey's answer to the question is quite as amusing. He appears to labor under the impression that gravitation is not constant; that the weight of the plate depends upon the curvature of the arch, for he says: "It is because gravity is exerted at right angles to a very limited space."

In conclusion, I must take exception to his substitution of the word "adhesion" for the word "suction." It may be more euphonious, and, when used in its proper sense, less vulgar; so are many other words that would be even more inappropriate than adhesion. But is vulcanite really so very adhesive? Will it show any tendency to stick to the tongue, or to the internal or external surface of the lips or cheek, or to mucous membrane in any position or form? Will it adhere to anything that is not in itself adhesive? Try again, Dr. Teskey, and until you have found a more appropriate word than "adhesion," drop the "vulgar" word "suction," and conclude that, whether or not an air-chamber is employed, the plate is held in place by atmospheric pressure.

A Business Man on our Fees.

By X. Y. Z.

A few days ago I was obliged to extract a root of a tooth, and subsequently to give advice because of the patient's neglect, and as the gentleman, one of our thinking and far-seeing men, handed me double the fee I asked him, he remarked: "Let me give you a bit of advice in your own interest, as well as in the interest of the country. *You should double your fees.* Over the lines men who do no better service to their patients, charge two, three and four times your fees. The cost of living, and I suppose the cost of being and practising as a dentist, has largely increased. Servant girls who got $5 a month, now get $10 and $12. Mechanics get double the wages they got twelve years ago. I understand that twenty years ago the dentists in the cities got $60 for an upper set on gold or platina. Eighteen years ago I paid $40 for my upper set of vulcanite, made in Toronto. To-day, they say, you give better sets for $20 and $25, while some fellows, who must be impostors, pretend to give good ones under $10! This is all wrong. It is better, a good deal, to work for one patient who will pay you ten dollars for an operation, than for ten patients who want the same operation for a dollar each. The ten-dollar patient will send you others like himself; but the ten cheap patients may send you others who will try to beat you down to fifty cents. People who can afford to pay the dentist to-day can easier now pay him the double fee than they could pay the single fee ten years ago; and it is a bad sign, in a growing country like Canada, when professional men lower their fees. Of course, there are circumstances when you may have to make reductions; but take my advice, and raise your own fees and urge your brethren to do the same. We, your patients, will, I am sure, get better served. No man works his best unless he sees success and a competence before him."

I was very much struck with the clear, business-like arguments of my patient, and I hope that when we have a code of ethics, no man who advertises cheapness as his leading recommendation, will be allowed membership in our societies. Go where you will in Canada, the United States or Great Britain, the "cheap" dentist is, without exception, a vulgar, and generally a very filthy quack.

Dentists' Supplementary Chair.

By A. A. Smith, L.D.S., Cornwall, Ont.

There has lately been brought to my notice an exceedingly useful chair, for hasty examinations of the teeth and cases of simple extraction, which present themselves so frequently, when our regular operating chairs are occupied.

This chair—which, by the way, is manufactured in Parkhill, Ontario, and sold by Mr. James A. Loudon, Cornwall, Ontario—is simple and durable in construction, light and convenient to handle, and is automatic in all its movements, thus enabling the patient to sit, recline, or lie prostrate in it at will. It is an excellent chair for receiving ether or chloroform patients after operations, thus relieving the operating chair at once and saving time; while, being mounted on strong castors, it can be easily moved about with the patient in any position.

I have had one of these chairs for some time, and have found it very convenient at my house, for making examinations after office hours, when such were required.

The general usefulness and convenience of this chair, combined with its low price, prompts me to bring it thus before the dental profession of Canada, knowing that any dentist securing one, will endorse all I have said in its favor, and will recognize that a long-felt want has been supplied.

Dental Dots Distilled.

By D. V. Beacock, L.D.S., Brockville, Ont.

Accuracy first, then speed; intelligence first of what should be done, then skill in the doing; this should be the order, and if followed will bring success.

To cause plaster to harden quickly, sugar is as good as salt and even better to increase its strength.

It is not allowable to immediately destroy exposed pulps, when by a little patience and intelligence they might be saved alive. If you can't do such work, be honest enough to turn the patient over to a dentist who can.

Because a first permanent molar has an extensive cavity is no justification for its extraction, the plea that the patient or the parent will not bear the expense of filling, is not sufficient for its loss ; nothing justifies its extraction but that it is beyond redemption.

It is not honorable to extract a tooth simply because a patient or patient's guardian demands it. They may be honestly deceived in the importance of the tooth, or which is worse, may prefer extraction because it is cheaper. It is for the dentist to be the educator of the ignorant, and a determined opposer of the penurious.

Because a tooth is loose and denuded of gum or even painful, with exudation of pus about the neck, is not sufficient cause for extraction. A dentist nowadays should be intelligent enough to treat such teeth.

A brass wire coiled spring, similar to a mattress spring, loosely fitted inside your vulcanizer, is a handy thing to keep the flasks out of the water while vulcanizing.

In repairing cases two, or even three pieces, can be put in one flask without packing, to save time. From six to nine cases can be put into a three-flask vulcanizer, and all done without the trouble and inconvenience of waxing up the machine. Sometimes a partial case can be made from beginning to end without the trouble of waxing up, etc., in the same way.

A piece of fresh rubber tubing slipped over the duplex springs of the Shaw engine will strengthen them and prevent breaking, etc.

In the same way rubber tubing, drawn over the handles of your excavators, makes them much easier to handle.

Rubber files can be made to do good service after being thrown by as useless. Put them in the fire till red hot all over, drop them end first into a pail of water, dry them and brush them with a file cleaner or stiff brush.

Burnishers dipped in vaseline, won't stick to gutta percha when hot, in filling cavities.

Oil of cassia has a greater range of antiseptic power than carbolic acid and much safer.

Oil of eucalyptus is good to use in root-filling when using gutta percha.

A Tuerk or Baccus water motor is a valuable help to run dental lathes, engines, etc., wherever water works are available. I have used one for years.

Dr. Rollins says that beta-napthol makes one of the best root-fillers in his hands.

Ditcham's germicide is one of the best, if not the very best, I have ever used, although rather expensive.

Selections.

Shock, in Relation to Dental Operations.

By Dr. James Truman, D.D.S.

(Read before the Odontological Society of Pennsylvania.)

It is well-known that death may come to the individual, and no trace of antecedent injury be manifest. Depression to the general circulating system may be apparent, and the medical attendant be wholly at a loss to define the cause. Mental emotion may produce changes at once rapid in its effects, and leaving results of a character that time may scarcely efface. The true definition of shock may be termed a "sudden depression of the vital powers resulting from an injury, or an impression made on the nervous system, or by fright; sudden and overpowering mental emotion." (Black.) While death may result from such a depression of vital powers, this extreme result is by no means always the case; but that the changed condition of the circulation may lead up to grave symptoms is clear, when it is understood that the delayed phenomena may be more serious than would be suggested at the earlier and more active stage of the shock.

To judge of the subject intelligently, the origin of collapse will be considered as briefly as may be consistent with the importance of the subject. Shock, or collapse, must be regarded as arising from an altered condition of the circulation produced by direct or reflex action on the nerve-centres, and without leaving any evidences of "change in the tissues; but, while this is unquestionably the case in some instances, there may be in others post-mortem evidences of morbid effects. The view that shock is always dependent on an altered state of the nerves has been combated, and Jordan has shown that potassium cyanide, by acting directly on the cardiac muscular fibre, and by impairing its contractility, gives rise to those numerous secondary effects of shock which depend on arrested or imperfect supply of arterial blood." The condition of knowledge in regard to the action of the vaso-motor system of nerves is, perhaps, too imperfect to assign positive reasons or to argue the question absolutely from facts. Sufficient is known, however, to form a basis of reasonable inference for much of the phenomena observed. These so certainly point to nerve influence circulation that the conclusion is inevitable—that the impulse proceeds from a centre of nerve action, and the circulation is changed by a direct loss of tone in the vessels.

The generally recognized view now is that the circulation is affected by direct irritation and by reflex action, and that "special vaso-motor nerve-centres exist for the various vascular provinces." (Wagner.) "Section of a vascular nerve will produce, therefore, a flow of blood to the parts to which it is distributed; that excitation by the interrupted current, or by mechanical means, produces constriction of the minute arteries; that excitation of a sensory nerve produces increased activity of the capillary circulation." (Simon.) The heart will continue to act after the removal of the nerve-centres, and hence is not directly dependent on these, and yet it is clear that mental emotions have a direct and powerful influence on this organ sufficient, in many cases, to produce death. True shock, as defined by some writers, must be limited to its "immediate production," while others attempt to classify it as "transitory, delayed, protracted, and insidious."

In the slighter degrees of collapse, the patient may present no marked symptoms, makes no complaint, and experiences no pain. The extremities are cold, face exhibiting a pinched expression. From this it may pass to the extreme form, with pallor on the surface, lips pale and bloodless, motionless, cold over the body, hardly perceptible pulse, great weakness, oppression, dizziness, nausea, confused perceptions, and respiratory movements feeble. These symptoms are not always confined to severe cases of physical injury, or to excessive mental emotion; but may be manifest after most trivial injuries, the effect being out of all proportion to the cause.

The relation which the phenomena of shock bear to dental operations may not be clear to the average observer; but to my mind they embody much subject for serious thought, and ought to lead to a clearer apprehension of our duty as practitioners.

While the evidence is very far from absolute that the conditions we are familiar with are dependent for a solution on shock, yet they are so closely allied to the phenomena that one is naturally drawn to inferences and suggestions. It is unnecessary to confine our observations to the extreme cases of collapse, for the symptoms will be variable. The mental emotion caused by the sudden loss of near and dear friends may not amount to shock in the extreme sense; but who has not observed the long periods of weakness, the lack of mental force, the general loss of tone in the circulation, which may take months, and even years, to recover from? Whether this be ascribed to continued shock or to other pathological sequences, it certainly had its origin in a deep impression made on the nervous system, and, consequently, in a loss of controlling power. My observations and conclusions lead me to the opinion that these phenomena must be ascribed to a modified form of collapse. The mental strain produced in times of great public excitement—the effect on a merchant who has ended a carefully ordered life with failure in business—the rapid decline of those who have commanded large bodies of men in war through many battles, most noticeable since the Rebellion—these all showing a nervous strain and producing symptoms and lesions which must be ascribed to the insidious working of nerve influence.

It seems to me impossible to avoid the conclusion that many serious conditions, now unexplained, must be attributed to this cause; at least, many more than are now generally recognized. What is weariness but a similar effect? We call it shock when the impression is a powerful one; but is not this only a form of insidious impression, an action on the nerve-centres in response to peripheral sensations? Make this an overstrain, and, if repeated and repeated, the tone of the vessels is lost altogether, and the individual succumbs. This may not be collapse in a scientific view; but is certainly an approach, and closely allied to it in the broader sense that the greater includes the less, and cannot be explained intelligently in any other way.

To apply these thoughts to dental operations and dental operators is a natural sequence. Dr. Black, in "The System of Dentistry," has made most of these facts familiar to you, and his views on the overtaxing of patients should be carefully read and pondered. He illustrates the importance of attending to this by a case in his own practice, and, as this bears directly on the subject, I quote it in full:

"A young lady of eighteen came from a distance by appointment to have various teeth filled. On examination it was found there were two exposed pulps, besides other smaller cavities. Both the young lady and her parents insisted that all should be done that day if it were possible. The operations were proceeded with, and everything without a murmur. My patient was a fine specimen of physical development, and I soon found she prided herself on her powers of endurance. The pulps were, at her urgent request, removed directly with the broach, and the filling proceeded with. After three hours of continuous operation, the patient was discharged for two hours' rest. She returned promptly, but something in her appearance arrested my attention as not being just right; yet, in answer to questions, she said she felt perfectly well, only a little tired. The operations were resumed, and all went well at first; but after an hour, the latter part of which had been occupied in the excavation of a very sensitive cavity, I found the pulse had become very compressible, and other evidences of shock were becoming apparent. Gutta-percha fillings were placed in the cavities excavated, and operations suspended. I found it necessary to assist her to a couch. After two hours in the recumbent posture she seemed better, and was taken to the train by her parents, and I saw her no more. I afterward learned from her mother that her condition became much worse *en route* home, and that for four or five days she was in a 'stupid condition,' and after this she passed into a nervous fever, which continued for several months. Up to the time I last heard from her, four years after the incident, she had been an invalid."

We all know of cases, and by no means infrequent, of persons exhibiting great weakness and depression after prolonged dental operations. Indeed, so common has this been with me, that for years I have been unwilling to extend the sitting over two hours, and then to insist on an intermission of several days. We, as dentists, interested in the operation at hand, can scarcely realize the nervous tension to which our patients are subjected. This mental and physical strain is sure to produce a condition of collapse, modified in extent though it may be, still, by constant repetition, may produce results of a grave character. The very long operations of from six to seven hours are, it is hoped, passed by. The craze for enormous gold operations has not only in the past depleted the purses of our patients, but has had equally injurious results on the circulatory system. While such operations may truthfully be defended on the score of value to the teeth, they cannot be recommended in view of the possibility of permanent injury to the individual.

Surgical shock may meet us directly in cases of extraction. The shortness of this operation may lead some to regard it as of little moment; but there is probably no operation that the average mind will not more calmly consider than this. A few favored individuals, blessed with very "strong nerves," can sit down and have a tooth out with a nonchalance surprising; but these are exceptional. With most of us it is a great mental strain in advance, and a great shock during the operation, and the consequent depression is fully in accord with what we know of the phenomena accompanying more important surgical cases. It has been too much the custom in the past to remove teeth as long as the "patient will stand it;" or, in other words, till the sufferer refuses longer to allow the forceps to enter the mouth. Hence, it is not unusual for persons to have many teeth removed at one sitting, and dentists have been known to pride themselves on their agility in handling many teeth in a given time. If my views be considered as having any force, are not such operators sometimes guilty of malpractice? They certainly have taken risks that may reach beyond the limits of endurance, and, should untoward results follow, they are to blame. I presume all will recall cases, in their ignorance—and we have all been ignorantly guilty in this—where, after many extractions, the patient has been confined to bed for days with all the symptoms I have detailed. It was from such experiences that I was led in years past to refuse to extract more than six teeth at one sitting. This I regard as the only safe practice, from this point of view as well as from that other, more remote, liability to hemorrhage. In these minor surgical operations we are not justified in jeopardizing the health and nervous energy of our patients. Caution is justifiable prudence.—*Items of Interest.*

Limitations in Treatment and Filling of Roots.

By J. A. Bazin, L.D.S., Montreal, Canada.

(Read before the Union Meeting, Springfield, Mass, October, 1889.)

The numerous articles that have appeared in our dental journals for some time past upon "Root Treatment and Filling" have caused me to doubt my experience and observation, and also with great diffidence to question the statements and almost dogmatic assertions of some of the writers.

More recently has this been the case in reading an article and discussion reported in the *International Dental Journal* by Professor James Truman, wherein he presents such a picture of almost complete perfection that I am forced to ask myself, as well as my associates, Can he have the same kind of teeth and the same order of beings to deal with as come into our hands? Believing that he has, and giving him, and all others who claim such full success in this branch of operations, credit for far greater deftness in manipulation and skill than I possess, yet the effect upon me has been to take up this subject for consideration, and try and deal with it in the light of the, perhaps, limited experience and tests that I am able to offer. The first proposition I shall try to establish is that it is far from being commonly possible to extirpate all the contents of the pulp-canals of all the three-rooted teeth while in their normal position in the human jaws. Nature is exceedingly fickle in the anatomy of the roots of the teeth, and I might go further, and say in all the details of the human frame, but will only deal at this time with one special subject. In proof, I exhibit a few teeth, not selected, but in the order of their extraction, mostly of first molars, from patients under twelve years of age, also a few specimens presenting marked peculiarities in root formation, but whose crowns are of normal type.

Of the first group I have removed the crowns, so as to have the freest access to the bifurcations of the canals that the drills and instruments might have no hindrance in passing to and through the foramen. Of course, no such presentation would occur in an ordinary operation in the mouth.

The results of my attempts to open these canals have been the breaking of drills in a few, puncturing at the side of the root in more, and succeeding in but a very small number of cases in passing at the proper point, and when doing so the *debris* would almost always be left outside in what would have been the "apical space." Another circumstance in connection with this drilling of the roots, which to me seems very important, and which I wish to emphasize, is that the amount of *heat* involved in penetrating any of the smaller canals must do injury to the connective tissue, as it often forced me to let go the tooth with my fingers, although the engine was moving at an exceedingly slow speed. If the drill chips accumulated in the least, *heat* was the result, and these chips must be removed in some way to allow the work to go on. Till the foramen is pierced, this *debris* can only be lifted out by the drill, and that imperfectly.

You will please notice that several of these lower molars, although being from such young people, have exceedingly flat roots and very minute canals, with a division in one root into two distinct branches of a very small diameter and obscure entrance from the pulp-chamber.

No instrument can penetrate these canals, and to attempt enlarging them is so difficult that the larger part of the crown must be sacrificed, and if much increase of diameter is attempted, penetration at the side of the root is sure to occur.

My second proposition is that nature is as fickle in a physiological and pathological sense, which I shall endeavor to establish by citations from my own practice.

1. A young lady when about fourteen years of age fell upon the ice and struck with great force upon the superior central incisors, the dentine became suffused with blood pigment, and when the case came into my hands, about three years later, both teeth were blue-black. After attempting to bleach, I excised the discolored crowns, and replaced them with Logan crowns. On doing this the left central canal was found free to apex, but the right was solidly filled with secondary dentine as far as I had need to drill. Neither tooth had given any trouble yet. Nature had been capricious.

2. A young man, about twenty, robust, and a noted gymnast, came to me with swollen face and left eye almost closed. On examination I found left central, a perfectly sound tooth as far as decay

was concerned, abscessed and discharging pus copiously from numerous openings. The history of the case is as follows : He was employed in a bank, and was directed to prepare a large amount of silver coin for export, and in tying the parcels kept the end of the string between his teeth. The three-sided form of the package doubtless caused repeated jerks and jarring, the result upon the upper tooth being as I describe, the lower ones not being affected.

3. A lady in middle life presented a right superior molar, which had a fistula on the buccal side, with no cavity or discoloration observable. After she had borne the annoyance for some time, I removed the tooth, and, upon examination, found complete ossification of the pulp and canals. (The tooth is now the property of Dr. Barrett, of Buffalo, who says it is the finest specimen he has ever seen.) Upon inquiry, I found this lady had been in the constant habit of cracking nuts and plum-pits upon every opportunity.

Again, a lower first molar was filled by Dr. Elliot, of this city, prior to 1855. I refilled it with the same material, amalgam, a few years after ; the pulp was then dead, as I presume it was at the first operation. No special effort was made to go beyond the pulp-chamber in cleaning or filling, creosote being applied. From that time till 1868 perfect peace reigned supreme.

In February of that year the patient became seriously ill in giving birth to a child without proper attendance, and very serious hemorrhage was the result, which was arrested by compress and plug. Within forty-eight hours the tooth described had the acute symptoms of alveolar abscess taking the usual course. (In this connection the question might be asked, Was this result one of those cases referred to by Dr. G. W. Black, where bacterial germs enter the circulation at a remote part and find fit conditions for multiplication ?) Is it correct to say that that filling was a success by reason of the fact that for more than ten years it remained a useful member? I might weary you with additional evidence to uphold my proposition.

Cases are common of pivot teeth on the hickory peg, where the only treatment usually given was that of removing the pulp with a broach, enlarging the canal to the desired size, and then sending peg and crown to its resting-place to abide in peace for ten, twenty and even thirty years. Not long since I removed four that had been in place for thirty-two years. Now, if this evidence is accepted, what ought the conclusion to be? Are there not limitations to our efforts to remove all the pulp from the roots?

I think it may safely be affirmed that only the single-rooted teeth can be well cleaned and filled, and even then much will depend on the locality of the cavity.

If it is declared *absolutely necessary*, the root to its apex *must* be cleaned and filled to insure success, but even with this care many failures are inevitable.

Passing beyond the single-rooted teeth, difficulties multiply rapidly, such as flattened and bifurcated roots, tortuous, and curved in very minute points. If the cavities occur on posterior or labial face, the sacrifice of a large part of the crown, with a corresponding weakness, must be the result to even reach the *entrances* to the canals. Often we have presented the second and third lower molars with pulp exposure, the cavity being below the margin of the gum either on the mesial or distal face, with a form of jaw that prevents a wide opening of the mouth, and on the superior jaw cavities of the lingual side.

Do the writers of the articles referred to intend to convey the idea that they remove all the *debris* to the apex of *each* of the several roots, and carry gold or cotton to their extremities?

Professor Truman, writing of the treatment of roots, uses these words: "The canal is thoroughly injected with peroxide of hydrogen as preliminary; this powerful oxidizer of organic matter prevents possible injury in cleaning out the *debris* of pulp tissue." Again, "The instruments used are passed through the alcohol flame," the "canal is then thoroughly washed with a certain solution, and when all odor of putrefaction ceases, the canal is generally considered to be ready for filling." Further on he says, "The canal is first closed at the apical foramen, at the shoulder, with either a small piece of cotton wet with carbolic, or better, if possible, with a small piece of gutta percha, and chloride of zinc is then passed into the canal, to remain for several days." In the discussion of the paper some statements were made which, I think, would be modified under a cross-examination. I quote, and I believe fairly, for it would make this paper too long to give full extracts. Dr. L. G. Perry commends the paper in every particular. He uses gutta percha points because it is possible to carry them to the end of the roots, and questions if it is not true, as claimed by Dr. Jack, that "the very small point of the canal can be filled as accurately with gold as with any other known means." Dr. J. Head "fills roots with cotton," but thinks there always is a strong probability that in molars the outer (?) portion of the apical foramen is unfilled. (Dr. Head seems to be the only one present at that discussion that hints at such possibilities.) Since this paper was prepared Dr. Head has an article in the October number of the *International Dental Journal* referring to this same paper and discussion, in which he suggests that if they would perform the operations in teeth embedded in plaster and have them dissected afterwards they would, probably, be convinced of the truth of his statements.

Dr. Dwinelle is very emphatic; he "fills the roots thoroughly, and usually with gold." In fact, with hardly an exception, it seems to be unquestioned by the members present that Professor Truman's position is tenable. As I said at the beginning of this paper, I feel great delicacy in criticising such a body of leaders in dentistry, whose papers and opinions are read with so much interest, but will not such statements mislead and deter our young and even some of our older members in their attempts to deal justly by themselves and towards their patients? When failure to save a tooth, after all their painstaking, meets them, will not the question arise, Who is to be compensated, patient or practitioner?

The conclusion of the matter seems to me to be, that averages rule in this, as in many other things. We can only do what we can with each individual case, cultivating our discernment so as to *know* the best for each; remembering that there are the conditions of locality, as well as of disease, that will render our most intelligent and earnest efforts only failures, or, at best, but temporary successes, since circumstances may render our work valueless in the weeks that are to follow. Another matter that seems to me to have its objectionable feature is the number of agents recommended for use in septic conditions, with the maze of doubt as to which of the twenty-five or thirty will be the best; the changing treatment that must arise if the future does not bring the expected result; and when the effect desired does come, to which shall credit be given; these all seem to declare that it were far better to have some definite series of experiments made. My experiments seem to demonstrate that it is not often that the *debris* of the drill can be blown or washed out of the canals if the apex is not well open, and if open much of the contents will pass beyond the root, but in such cases septic treatment ought to correct any injurious effect. I indulge the hope that what I have here written may be received in the kind spirit in which it is given, and that each one may be stimulated to increase his successful averages.

Since writing the above article I have had some tubes prepared, partly filled with bone dust, which I would like to see washed out or blown away by any of the means or instruments now used in the mouth. These tubes present a smoother and more perfect surface than those made in the canals, and if these cannot be cleaned, how can the teeth?—*International Dental Journal.*

The Dentist's Assets.

By Prof. C. M. Wright.

The dentist's assets amount to a few hundreds, or, at best, a few thousands of dollars, while his working capital before death could be easily and fairly estimated as a non-transferable capital of many thousands of dollars. The reputed skill, the moral integrity, the business capacity, the persistent efforts, the "personal practice" of the man in his prime are practically worth, in some cases, hundreds of thousands of dollars, placed at interest at six per cent. per annum. The man owning $100,000 in money frequently works hard to make this money earn for him an income of six per cent., or $6,000. The dentist earning $6,000 from practice is then, in one sense, worth to his family $100,000. Twelve thousand a year at six per cent. equals $200,000.

But the $200,000 is only a life interest. It is like a gas well, which is profitable as long as it flows, and the flow may stop or decrease in quantity at any time. Another point in regard to a dentist's capital (shall we say floating capital?) is, that it is at its maximum for about a quarter of a century at best, or say from thirty to sixty years of age. Few men before thirty years of age have an income of much significance, and by sixty years of age the work of the average dentist, as far as an income-gatherer, is over. So that the material wealth of the dentist consists of an *income of money* for, let us say, thirty years, which income during this period is sufficient for himself and family, enabling them to maintain a home establishment, affording great comfort and a degree of what we may call quiet elegance. The most successful and business-like dentists, by the exercise of some financial skill and considerable prudence in the way of expenditure during the period of the thirty years of paying practice, become real owners of the homes of their families; and I use the term *real* owners, because of the frequent and uncomfortable mortgages casting clouds over the clear title of many of these elegant homes believed to be owned by dentists in good practice.

Besides the good income—that is, the income which affords the comforts and elegances of the nineteenth century, in a scale of society as far removed from the lowest as it is from the highest grades—the successful dentist is generally the possessor of life insurance policies valued at from $5,000 to $30,000 or $40,000, which his income permits him to maintain, and which form the most important part of the effects of the dead dentist who has been a successful and prudent dentist during his years of activity. This is all that I can say in regard to the material wealth of the dentist. —*Dental Register.*

Our Canadian College.

The sixteenth session of the Toronto Dental College was opened on Tuesday evening, October 7th, with about sixty students in attendance; twenty-five being seniors and thirty-five juniors. Dr. Willmott delivered the opening lecture, and gave a short history of the provincial laws relating to dentistry, and drew a comparison between them and those prevailing in the United States. He pointed out the rapid advance made by the dental profession in this Province, and how it had been brought about, and concluded by urging upon the students the importance of thoroughly mastering the principles of dental science before entering upon the practice of their profession, and the necessity of a strict adherence to honorable and professional conduct ever afterwards.

The curriculum for this year differs slightly from that of former years, the principal change being in reference to the practical work necessary for examination. Hereafter every freshman, before presenting himself for his intermediate examination, must submit a whole upper or lower set of single gum teeth, mounted on a swaged metal plate, soldered with hard solder, and not plated or gilded ; also a Richmond metal crown, and a Richmond crown with porcelain face, both fitted upon but not cemented to the root of a tooth. This work shall all be done in the laboratory of the College, under the supervision of the Demonstrator, and as soon as completed shall be handed to him to be sealed up in an envelope, marked with a suitable number or word. When the Board of Examiners meets, these sealed evelopes will be handed to the Examiner in Dental Prosthetics. If in any case the work is not satisfactory, the candidate shall take this examination over again in his final year. The advantages of this course are apparent. The student will master the practical operations of modern mechanical dentistry during the first session, leaving him the second to devote to operations in the mouth.

Whether or not it will lighten the labors of the senior students, who frequently claim they are overworked, will depend upon the rest of the course, but certainly it will insure the juniors being kept busy. We think, too, it will call attention to the class of work taught in our Canadian College, and perhaps discount the statement so frequently made by quasi-Americans, that students do not get as good a practical training in Toronto as they do in the American colleges. We know of no American college where the student is required to pass anything like as rigorous an examination as this the first year—if, indeed, he is required to pass any at all ; and when it is remembered that before taking his final year the student must spend twenty-six months, *exclusive* of the time spent at college, in the office of some licentiate, during no part of which can he be engaged in any other occupation or calling, it will be seen that if he had any brains to start with, he must be pretty well up in his practical work. And right in the matter of brains is where we get the start of the American colleges. While we require matriculation in arts or medicine at some Canadian university, for matriculation in dentistry, most of them are perfectly satisfied with the ability to read and write the American language. We know something of the ability of some of the students attracted by this ease of matriculation, as we manage to export a few every year, and as our standard rises the number will no doubt increase, unless, perchance, a future Congress adds a section to the McKinley Bill covering the case. We do not wish to be understood as saying anything against the work done in the American colleges. The dental colleges of the United States have done a grand work, which is shown by the fact that American dentists are at the head of the profession to-day. But we do wish to emphasize the fact that in the careful selection of its students, in thoroughness of training, and in strictness and severity of examinations, our own college is the peer of any in the world.

Legislation in Canada.

The following two Acts of Incorporation, which should have appeared in a former number, were misplaced, and only lately came to light. We apologize to our friends in British Columbia and the North-West Territories.

An Act to Regulate the Practice of Dentistry in the Province of British Columbia.

[Assented to, 6th April, 1886.]

Whereas the profession of dentistry is extensively practised in Europe, the United States and the Dominion of Canada; and whereas the said profession of dentistry is protected by law in Europe, the greater portion of the United States and in parts of Canada; and whereas it is expedient for the protection of the public that there should, by enactment, be established a certain standard of qualification required of each practitioner of the said profession or calling, and that certain privileges and protection should be afforded to such practitioners:

Therefore, Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:

1. That it shall be unlawful for any person to practise, or attempt to practise the profession of dentistry or dental surgery in the

Province of British Columbia without having first received a diploma from the faculty of some reputable dental college, school or university department duly authorized by the laws of Great Britain and its dependencies, or the laws of some foreign government, and in which college, school or university department there was at the issuance of such diploma annually delivered a full course of lectures and instructions in dentistry or dental surgery, and without having had issued to him a certificate under the provisions of this Act: Provided, that nothing in section 1 of this Act shall apply to persons who have been three months in actual practice in this Province previous to the passage of this Act, except as hereinafter provided, and nothing in this Act shall be so construed as to prevent physicians, surgeons or others from extracting teeth.

2. A Board of Examiners, consisting of three practising dentists, residents of this Province, is hereby created, who shall issue certificates to persons in the practice of dentistry or dental surgery in this Province who have been three months in actual practice in said Province previous to the passage of this Act; and also to decide upon the validity and sufficiency of character of such diplomas as may be subsequently presented for registration as hereinafter provided.

3. The members of said Board of Examiners shall be appointed by the Lieutenant-Governor in Council upon the passage of this Act, and shall serve for a term of three years, excepting that the members of the Board first appointed shall hold their offices as follows: One for three years; one for two years; one for one year, respectively, and until their successors are duly appointed.

In case of any vacancy occurring in said Board, such vacancy shall be filled by the Lieutenant-Governor in Council from those in actual practice in the said Province.

4. The said Board of Examiners shall keep a record in which shall be registered the names, residences or places of business of all persons authorized under this Act to practise dentistry in this Province. The said Board shall elect from its members a president and a secretary, and shall meet at least once a year, and whenever applications for certificates shall be made. A majority of the members of said Board shall constitute a quorum.

5. Every person engaged in the practice of dentistry within this Province at the time of the passage of this Act shall, within three

months thereafter, cause his name and residence and place of business to be registered with the said Board of Examiners, upon which said board shall issue to such person a certificate duly signed by a majority of the members of said Board, and which certificate shall entitle the person to whom it is issued to all the rights and privileges set forth in this Act.

6. To provide for the proper enforcement of this Act, the said Board of Examiners shall be entitled to the following fees (to wit): For each certificate issued to persons engaged in the practice of dentistry in this Province at the time of the passage of this Act, the sum of ten dollars; for each certificate issued to persons not engaged in the practice of dentistry at the time of the passage of this Act, the sum of twenty-five dollars.

7. There shall be allowed and paid to each of the members of the said Board of Examiners such fees for attendance, in no case to exceed ten dollars per day, and such reasonable travelling expenses as the said Board shall allow from time to time. Said expenses shall be paid out of the fees and penalties received by the said Board under the provisions of this Act.

8. All moneys in excess of necessary expenses shall be held by the secretary of said Board as a special fund for meeting the expenses of said Board, he giving such bonds as the Board may from time to time direct.

9. The said Board at its first meeting, and from time to time thereafter, shall make such rules, regulations and by-laws, not inconsistent with the provisions of this Act, as may be necessary for the proper and better guidance of the said Board, which rules, regulations and by-laws shall first be published for one month in the *British Columbia Gazette*, and in one or more newspapers circulating in the Province. Any or all of such rules, regulations and by-laws shall be liable to be cancelled and annulled by an order of the Lieutenant-Governor in Council.

10. The secretary of said Board shall, on or before the fifteenth day of January in each and every year, enclose to the Provincial Secretary an annual report of its proceedings, together with an account of all moneys received and disbursed by said Board of Examiners; also a list of the names of all persons to whom certificates have been granted, and the qualifications therefor, and such lists shall be published in the *Gazette*.

11. If any person, after the period of three months after the passage of this Act, not holding a valid certificate, practises the said profession or calling of dentistry or dental surgery, or wilfully and falsely pretends to hold a certificate under this Act, or takes or uses any name, addition or description implying that he is duly authorized to practise the profession or calling of dentistry or dental surgery, he shall, upon a summary conviction thereof before any justice of the peace, for any and every such offence pay a penalty not exceeding one hundred dollars nor less than twenty-five dollars, and the half of any such penalty shall be paid to the Board of Examiners ; and it is further provided that no person who is not qualified under the provisions of this Act shall recover in any court of law for any work done or any materials used by him in the ordinary work of a dentist.

12. Any British subject being a resident of this Province (not entitled to the privileges and benefits of this Act under section 1) desirous of entering the profession or calling of dentistry, shall be apprenticed to a practitioner duly qualified under this Act for a period of three years, and shall file his articles of apprenticeship with the Secretary within one calendar month after the said articles have been executed.

13. Any such person having been so apprenticed as aforesaid shall, at the completion of the term of his apprenticeship, and upon the production to the secretary of satisfactory evidence of his having served his said apprenticeship, and of his good moral character, be entitled to be examined as to his fitness to practise the profession or calling of dentistry before the Board of Examiners appointed under this Act, and shall, upon passing such examination to the satisfaction of the said Board, receive a certificate, upon the payment of a fee of ten dollars, which shall entitle him to all the rights and privileges of this Act.

An Ordinance to regulate the practice of Dentistry in the North-West Territories.

The Lieutenant-Governor, by and with the advice and consent of the Legislative Assembly, enacts as follows :

1. That no person shall practise the profession of dentistry or dental surgery in the North-West Territories without having first

received a certificate as hereinafter provided, entitling him to practise dentistry or dental surgery.

2. That such certificate shall be issued by the Clerk of the Legislative Assembly, upon production to him of a diploma of graduation in dental surgery from the faculty of any Canadian dental college, or the faculty of any Canadian university having a special dental department, or from any such institution duly authorized by the laws of Great Britain, or any of her dependencies; or a license to practise dental surgery issued by any of the Provinces of the Dominion of Canada, or a diploma or license from a foreign dental institution, which required at the time of issue of such diploma or license, attendance at a regular course of lectures, and an apprenticeship of not less than two and one-half years; or who has been in regular practice in the North-West Territories as a dentist or dental surgeon for a period of one month immediately preceding the passing of this Ordinance, and it shall be the duty of the persons claiming to be entitled to the certificate required by this section, to produce to the said clerk evidence, satisfactory to him, of his being entitled thereto.

Provided always, that nothing herein contained shall be construed to require physicians, surgeons, or others to take out such certificate for the purpose of qualifying them to extract teeth.

3. That before any such certificate is granted the applicant shall pay to the general revenue fund of the Territories, the sum of $25.00, unless he is a person who, at present and for one month immediately preceding the passing hereof, has been in the actual practice of dentistry and dental surgery in the North-West Territories, and in such case he shall pay into said fund the sum of $5.00.

4. After the period of six months from the passing of this Ordinance, any person, not holding a valid certificate issued by the said clerk as aforesaid, who practises dentistry or dental surgery, except extracting teeth, shall be guilty of an infraction of this Ordinance; and, upon conviction by any justice of the peace within the Territories in a summary manner, pay a fine not less than $20.00 nor more than $100.00, in the discretion of said justice, and costs.

5. That no person who has not received the certificate required by this Ordinance shall recover in any court of law any fees or money for any materials provided by him in the practice of dentistry or dental surgery, except for extracting teeth.

Editorial.

"The Kicker."

This is not a new dental engine. It is an ancient and perennial human being, and doubtless, like the mosquito, is designed for some wise purpose once beyond human ken. When the first Dental Journal and College were proposed in Baltimore, he was not only discovered there, but in every State of the American Union, and there are lineal descendants from Maine to California, who still disbelieve in journalism and education. If the kicker had his way in Canada, instead of organized means of education, we should find stable-boys and jewellers jumping from the curry-comb and the bench into the surgery at one bound, after perhaps six weeks' training. The kicker, as a rule, who condemns education because it is not equal to the very best older and more populous countries supply, is well aware that he himself is unqualified to improve it, and the impracticable suggestions he ever ventures to make only prove that he is more animated by jealousy or ignorance than any idea of self-sacrifice or sincerity. The kicker has rarely, if ever, distinguished himself by self-sacrifice He is as lavish in unreasonable criticism as he is niggardly of his time or money, and with every thought and action it is "*Aut Cæsar, aut nullus.*" Yet when he is put into Cæsar's place, who ever knew the kicker to do more than kick? There may be a great hidden purpose in the creation of the kicker. But supposing that kickers would only become as generous and loyal as they are carping; supposing they would kick with the best efforts leaders can make, instead of against them; what a difference it would make if they would lend their energies for development instead of for destruction, as builders instead of as iconoclasts. As a respected judge in Hamilton once said to the late Dr. Chittenden: "You dentists are good pullers. What a great body you'd be if you'd all pull together." Now we believe we have discovered the object of the kicker's creation. He is designed to help, not to hinder. He is intended to make, not to mar. The only trouble is that he has been kicking the wrong way. If he kicks fair and straight, the object of his creation will be splendidly fulfilled. Of course, there may be abnormal creations, who kick just from pure "cussedness," and who are like the old Scotch elder, who, when asked why he sought to be elected on a committee, as he couldn't make a speech, replied, "Weel, I can object."

Fair Play for this Journal.

When the editor of this journal, in the enthusiasm and ignorance of professional hobbledehoyhood, ventured to become the founder of dental journalism in Canada, he never stopped to reflect that not only were there a multitude of rivals seeking subscribers, but that these rivals, without an exception, had the financial and business backing of dental depots. The result was that at the end of the first volume of the CANADA JOURNAL OF DENTAL SCIENCE, the writer had bought a lot of experience at a loss of about seven hundred dollars. Almost everybody to whom the Journal was regularly sent each month, kept it. But only seventy-six paid their subscriptions. This did not deter from future attempts; and when the last volume was finished—though the last two volumes were financially successful—the profession was in debt to the Journal in the nice little sum of twelve hundred dollars. No special attempt was made to collect this.

The DOMINION DENTAL JOURNAL is published by a gentleman in Toronto who has both the capital and the experience to make it successful, but he does not propose to present it gratuitously to its readers. The many friendly and honorable men who promptly remit their subscriptions ought not to pay for the forgetful; and it is only fair to remind delinquents that this number completes two volumes, for which a good many have not yet paid a cent, and who have regularly received it.

One of our old friends in the depot business has a personal objection to this Journal, because he thinks a business rival is favored; but he must admit that he has equal access to the advertising pages, if he chooses to pay equal terms; and that neither directly nor indirectly has the Journal at any time shown the least favor, or even mentioned the name of the rival depot, excepting in common with other advertisers in the advertising pages. Complaints have repeatedly been sent to us that certain agents of Canadian depots have done their best to disparage this Journal; and several declarations have been made that they absolutely refused to receive subscriptions, and attempted to divert them to Journals across the lines. The publisher is in possession of proofs that would make very unprofitable litigation for one or two of these parties, and a leading Toronto barrister urged him to make use of it, "as one of the best advertisements the Journal could secure."

These gentlemen depend exclusively upon the Canadian profession for their business, and if they do not see fit to make use of the advertising pages, they must at least not attempt to damage its circulation. We thank our friends who have sent us information. If a Canadian Journal is not entitled to Canadian support, neither is a Canadian depot. This Journal is as open to one dealer as another on equal terms. Nobody can conduct a journal to satisfy everybody; but all we ask is fair play. And we shall get it, even if we have to fight for it in the Courts.

To Contributors, Exchanges, and Publishers.

Several letters, exchanges and books for review have been lost, owing chiefly to the fact that they have not been sent to the editor at Montreal. Some one has to do the work of editor-in-chief, and we would thank contributors, exchanges and publishers to direct their material to the editor at Montreal. All letters relating to advertising and all subscriptions must be sent to the publisher only, at Toronto.

An Apology.

Several circumstances have occurred which make it necessary to defer until the next issue a good deal of interesting original matter. The next number will also contain a condensed report of the Union Dental Convention, October 28th to 31st, in Berkeley Hall, corner Berkeley and Tremont Streets, Boston. Fourteen societies will unite at this meeting.

Tit-Bits.

Busy or bothered men, as most of our Dentists are, do not feel like sitting down at the close of day to write elaborate articles for the Journal; but there is hardly one in the profession who could not send us some hint from practice, or some tit-bit of daily experience, that would perhaps be much more useful.

A Secret Revealed.

A suspicious character is retailing in Ontario a local anæsthetic at five and ten dollars. He makes the purchaser sign an agreement to forfeit $100 if they divulge the secret. He then goes out and sells it to any other person who will buy it. Our subscribers can save their money, as we herewith give it to them : Chloral hydrate, 26 grains ; fluid extract belladonna, 10 drops ; sulphate atropia, 1 grain ; carbolic acid, 8 drops ; muriate cocaine, 18 grains ; saturated solution boracic acid, 8 drachms. Dissolve well. Then filter.

At the seventh annual session of the National Association of Dental Faculties, held at Excelsior Springs, Mo., August 4th, the application for membership of the Royal College of Dental Surgeons of Ontario, which was laid over last year, was received and admitted.

In the next issue we shall begin a careful abstract of all the journals, condensing matter of scientific and practical value into small space.

Correspondence.

DEAR SIR,—I am not a subscriber to the JOURNAL, and I don't mean to be, and I'll give you my reasons : You take too high a stand to start with, as the profession is new in Canada, and the dentists cannot afford to starve for the sake of keeping up appearances, societies, journals. I never asked anybody for ideas, and I don't give any. I do not trouble any one. If you choose to crack up education, I will not quarrel with you. Only I have so far satisfied a good majority of the people of ——— for over twenty-eight years or more, and I think my work will speak for itself. I would not have ninety-nine out of every one hundred of your "educated" young men in my office. They think they know so much ; you discover they know very little, though they can talk theory to you, and have more brag and gas than real ability. Just let dentistry slip along in the old way, and if you have any practical hints give them to us, and we can pay for them. But I say we don't want "highly-educated" men. We want good mechanics, who can work in their shirt-sleeves, and who aren't particular about all the fine nonsense of antiseptics, bacteria, etc. What the mischief does it all mean? Am I a fool, or are you? [You are, decidedly.—ED. D. D. J.]

Reviews.

Dental Surgery, including Special Anatomy and Pathology. A Manual for Students and Practitioners. By HENRY SEWILL, M.R.C.S., L.D.S. Eng. Third edition. Bailliere, Tindall & Cox, 20 King William Street, Strand, London, 1890. E. M. Renouf, 2240 St. Catherine Street, Montreal, or any bookseller in Toronto. Price $3.25.

In the October number for 1889, we reviewed "Dental Caries," by Mr. Sewill, and expressed the special pleasure it gave us to meet with a work of such scientific and literary merit. The present volume, by the same author, is unquestionably a model in its way, and by far the most valuable contribution to dental pathology the profession has possessed for some time. The list of contents embrace anatomy and histology of the teeth, development, growth of the jaws; abnormally formed teeth; irregularities; caries, prevention and treatment; exposure of the pulp; diseases of periosteum, periodontitis, alveolar abscess, periostitis and necrosis of the maxillæ, exostosis, necrosis, absorption of roots, absorption of alveoli, pyorrhœa alveolaris. Caries and its sequels in infancy and early childhood. Diseases of the gums and buccal mucous membrane. Ranula, glossitis, abrasion, erosion injuries. Concussion, dislocation and fracture of the teeth. Pivoting. Porcelain inlays, crown, bar and bridge work. Salivary calculus. Morbid growths connected with the teeth. Diseases of the autrum. Toothache, neuralgia and diseases of the nervous system. Extraction. Dislocation and fracture of the jaw; closure of the jaw. The list of authors consulted is also given. One of the valuable features of the book is the very fine *fac simile* reproductions of photo-micrographs, by Messrs. Pringle and Charters White, which are, perhaps, the finest thing of the kind yet published in dental literature. Mr. Jonathan Hutchison contributed his original drawings from which the engravings of syphilitic and honeycombed teeth are taken. A very wise discrimination has been shown in the use of the wood cuts to be found in manufacturers' illustrated catalogues.

The chief value of Mr. Sewill's work is in the original research into dental pathology, assisted by microscopical and bacteriological experts. The phenomena of caries has been conscientiously investigated, and the result of Mr. Sewill's work must prevail over the loose and unscientific argument with which we were familiar. Mr. Sewill encourages the ordinary observer by the assurance that research into the nature of caries is by no means difficult. Mr. Sewill does justice to the labors of former and contemporary observers. We cannot too highly commend this valuable volume to our subscribers. The Canadian dentist who does not possess it must remain behind the times, so far specially as to the most reliable investigation into the phenomena of the principal disease with which we have to deal. Messrs. Balliere, Tindall & Co. deserve credit for the handsome style in which they have published the book.

University Quarterly Review. Occupied with subjects of current thought. Second quarter, 1890. Toronto. Single number, 50 cents ; per annum, $2.00. Communications to be addressed to P. O. Box 298, Toronto.

We have been so accustomed in Canada to a deluge of trashy, as well as of meritorious, efforts in literary home journalism, that we are loath to believe a really good one will succeed, and publishers who attempt such creditable enterprises as the above have, no doubt, to bear the burden of temporary disappointment. The *Canadian Monthly*, which did such valuable service to Canadian literature, sealed its doom by its alliance with a gentleman and a scholar, who, however much he was respected as such, failed to sympathize with the spirit of Canadian and British feeling prevalent in the country. No doubt, too, the rivalry of English and American periodicals had a good deal to do with its failure. The publishers of the *Review* have acted wisely in creeping with a quarterly before they try to run with a monthly, and the success so far justifies the belief that it has come to stay. The same feeling which should inspire a Canadian dentist to support a Canadian journal devoted to his specialty, no matter how many foreign rivals there may be, should induce every intelligent Canadian to give the *Review* a place in his home. A journal of this kind should be on every dentist's table.

A New Medical Dictionary ; a compact, concise vocabulary, including all the words and phrases used in Medicine, with their proper pronunciation and definition, based on recent medical literature. By GEO. M. GOULD, A.B., M.D. P. Blakiston, Son & Co., Philadelphia ; E. M. Renouf, Montreal ; or any Toronto bookseller. Small octavo, 520 pages ; half dark leather, $3.25, with thumb index, half morocco, marbled edges, $4.25.

The need of a new medical dictionary has been keenly felt, especially by students, within the last few years, owing to the advancement in medical and surgical science. This work is not a mere compilation from other dictionaries ; the definitions have been made by the aid of the most recent standard text-books. It includes several thousand new words not contained in any similar work ; tables of the abbreviations used in medicine, of the arteries, of the bacilli ; giving the name, habitat, characteristics, etc., of ganglia, leucomaines, microcci, muscles, nerves, plexuses, ptomaines, etc. It is a decided luxury to the student, and will, no doubt, become a text-book in the colleges. In fact, it is a little library in itself.

Irregularities of the Teeth and their Treatment. By EUGENE S. TALBOT, M.D., D.D.S. Second edition, revised and enlarged. 234 illustrations. Philadelphia : P. Blackiston, Son & Co., 1890. E. M. Renouf, Montreal, or any Toronto bookseller.

Dr. Talbot has in this new edition produced a really valuable work, which only an earnest and experienced author could write. Part I., comprising one hundred and sixty-six pages, is devoted to the etiology of irregularities, discussing constitutional and local causes very fully and clearly. An historical sketch of theories regarding the etiology of irregularities of the maxillæ as well as the teeth is included. The author may seem to have omitted many details of treatment, in so far as illustrating special cases, but the omission is justifiable, as no two cases can be treated alike, and the practitioner who familiarizes himself with the preceding portion of the book, will intuitively conceive methods for any special case with which he may have to deal. The various mechanical forces are described clearly, while the consideration of the different methods of Drs. Patrick, Farrar, Byrnes, Coffin, and the author's, as well as the treatment of special forms of irregularities, are fully explained. The illustrations, one hundred and sixty-nine of which are original, are very fine. It is unnecessary to repeat that the publishers have maintained their reputation in this volume.

A Compend of Dental Pathology and Dental Medicine. By GEO. W. WARREN, D.D.S. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1890. E. M. Renouf, Montreal, or any Toronto bookseller. Price $1.

One of the handy and useful little series of "Original Compends," based on reliable text-books, and useful to all students.

Manual of Dental Surgery and Pathology. By ALFRED COLEMAN, L.R.C.P., F.R.C.S. Revised and adapted to the use of American Students and Practitioners. By THOS. STELLWAGEN, M.A., M.D., D.D.S. Philadelphia: Henry C. Lea's Son & Co. E. M. Renouf, Montreal, or any Toronto bookseller.

Mr. Alfred Coleman has long been distinguished in British dental circles, as one of the best teachers in the dental schools of London, and whose labors were rewarded by the esteem of his friends in once placing him in the position of President of the Odontological Society. The American edition issued so handsomely by Messrs. Lea and Sons, has been thoroughly revised and adapted to the use of students and practitioners in the United States and Canada, by Dr. Thos. C. Stellwagen, of Philadelphia, which will be an assurance of its practical value. Mr. Coleman aims to cover the field of operative dentistry, and while he will naturally, like all Old Country writers, find critical objectors in this country, the general object, and the special merits of the work, must give it a high place in our literature.

A System of Oral Surgery, being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth and Associate Parts. By JAS. E. GARRETSON, A.M., M.D., D.D.S. Illustrated with numerous wood cuts and steel plates. Fifth edition, thoroughly revised, with additions. Philadelphia: J. B. Lippincott & Co., 1890. Price $9. E. M. Renouf, Montreal, or any Toronto bookseller.

Thirteen hundred and twenty-one pages of anything coming from the pen and experience of Professor Garretson, is sure to have received careful and conscientious authorship. Thirty years of practice, and exceptional opportunities in clinical work give assurance that the author has well performed the responsibility of placing this before the critical world of dentistry. Its chief value lies in the alliance Dr. Garretson keeps in view of medicine and surgery with dentistry proper. While acknowledging that an operator may be a first-class operator, and fully able to practise dentistry proper without a general medical education, it is seen at a glance that such dentistry must necessarily be circumscribed. The question is just this: Why limit the scope and sphere of the dentist to the specialty of operative practice if the leaning and taste go towards oral surgery? Dr. Garretson's work seems to give weight to the belief that an oral surgeon must also be a dentist, if he is to do the best that two professions can supply. The volume shows admirably what oral surgery is when practised from the standpoint of oral surgery. The author may be acknowledged as the pioneer of a new development of dentistry, but only those who have had a thorough medical and surgical education are qualified to follow where he leads. There is not a dentist in the land, however, who would not have his ideas broadened by a careful study of this splendid work.

Dental Mirror, monthly. The Dental Publishing Co., New York. Editor, Rodrigue Ottolengpi, M.D.S.

A bright and sparkling new venture in dental journalism, which promises to be a success, under the editorship of one of our ablest men.

Vol. II.---No. 1.
JANUARY, 1889.

Dominion Dental Journal

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DEC 27 1890

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For Contents, see 2nd Page.

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PUBLISHERS' NOTICE.

DEAR DOCTOR,—

We have endeavored in every way to make the DOMINION DENTAL JOURNAL an assured success, and we wish you in your turn to give our editors every assistance in making the Journal the organ of the Canadian profession, and in this connection the Publishers wish to notice the statements of certain unscrupulous parties that this Journal is the organ of a dental depot. The fact that, for the past year, the greater portion of the advertising space was taken by a Montreal depot, and that this year four Canadian dealers are advertising with us, sufficiently stamps the circulator as a purveyor of ***truth.***

Another party stated that it was impossible for him to obtain access to our advertising columns. This party we are happy to place in the same category as the previous one, and to assure both parties, with all frankness and firmness, that a continuance of their present course will involve them in unpleasant legal proceedings. But for our principal redress we look to the Dental profession and see how they consider these men, then, who have made a living from the Dentist's needs year after year, and then offered this lame and paltry excuse for not supporting the professional Journal. We have been very well pleased with the manner in which the Profession have supported the Journal for the past year, but we ask each of you to put forth greater efforts this year, as the success of the Journal is to foreigners an index of the success and elevation of our Canadian Profession. Many of our subscribers would like to see the Journal a monthly; this we cannot at present promise, but if our support for '90 is anything like present indications, we can appear in '91 as a bi-monthly.

Wishing you every success for the coming year,

We remain, yours truly,

THE PUBLISHERS.

Vol. XXXII. 1890.

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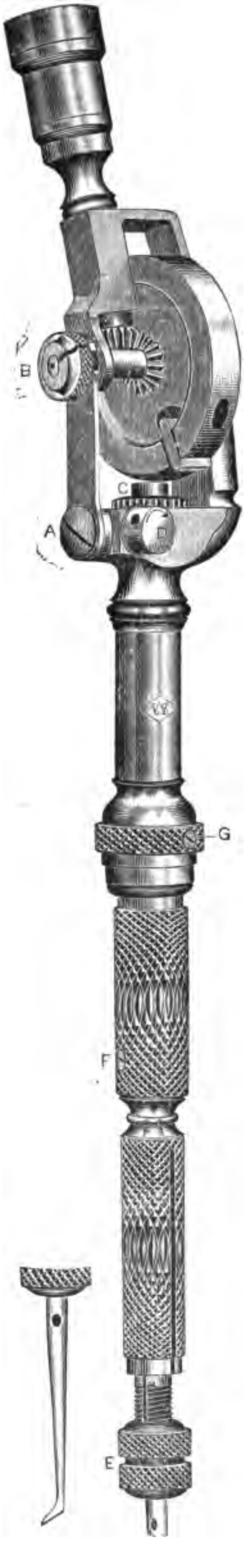

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The Mallet is held in the hand like a pen or pencil, with the two first fingers resting upon the squeeze-nut, and the thumb against the milled portion of the case. This manner of holding it gives complete control of the working of the Mallet. The blows may be intermitted temporarily without stopping the engine, as in picking up and placing the gold, by simply extending the fingers, thus removing the end of the plunger from contact with the hammer ; or the blows may be made almost continuous, by flexing the fingers ; or the plugging-point may be turned and directed by a movement of the thumb and fingers.

The milled portion of the case is swiveled at G, to permit change in the position of the plugging-point.

We can supply the Bonwill Mechanical Mallet with attachments for the No. 4, No. 6, No. 7, or H. & W. Hand-pieces, for the Slip-Joint Connection, and for the Bonwill Engine. The illustration shows the Slip-Joint Connection.

Directions for use with each Mallet.

PRICE - $15.00.

In ordering be sure to indicate which attachment is wanted.

THE S. S. WHITE DENTAL MANUF'G CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

THE BONWILL

IMPROVED

MECHANICAL MALLET

No. 2,

FOR ELECTRIC MALLET PLUGGERS

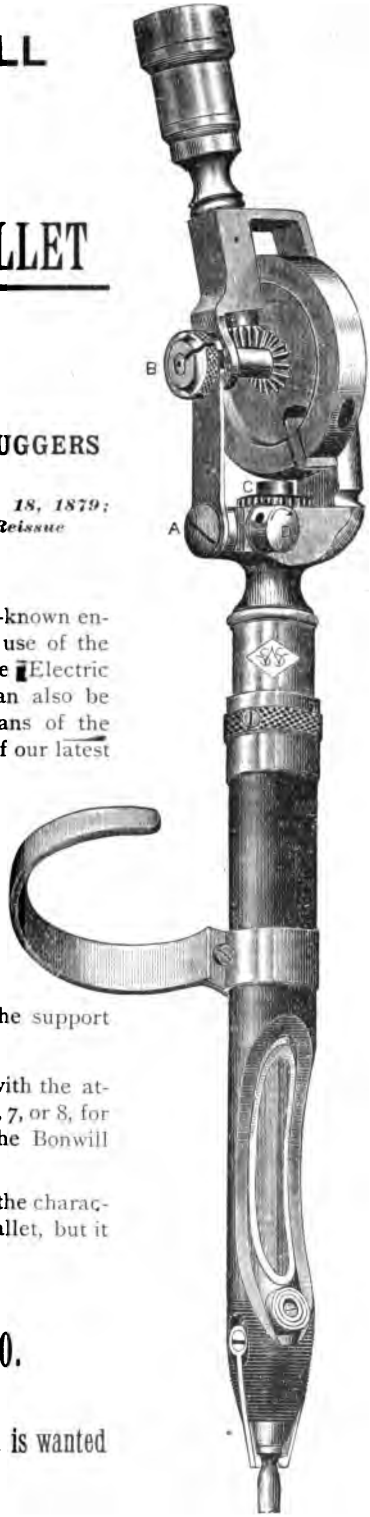
Patented October 15, 1878; February 18, 1879; March 6, 1888; April 30, 1889. Reissue June, 17, 1879.

THIS is a modification of the well-known engine mallet to adapt it to the use of the long-handle pluggers made for the Electric Mallet. Ordinary socket points can also be used in it with equal facility by means of the proper socket-handles (see page 36 of our latest Instrument Catalogue).

The new appliance is in effect an adaptation of the advantages of form and construction of the Electric Mallet to the needs of engine malleting. The stem is of hard rubber or vulcanite with finger-slot, stop-motion, springs for holding the instrument steady, and ring for the support of the Mallet.

We can supply the No. 2 Mallet with the attachments for Hand-pieces Nos. 4, 6, 7, or 8, for the Slip-Joint Connection, and for the Bonwill Engine.

The plugger is illustrated to show the character of the instrument used in this Mallet, but it is not included in the price.



PRICE - $18.00.

In ordering, state which attachment is wanted

REDUCTION IN PRICES

OF

Disks, Stump-Wheels, Points, and Strips.

DISKS.

Sand-Paper Disks,	100 in a box	per box $0.12 or 10 boxes for 1.00	
Emery " "	100 "		
Cuttle-Fish Paper-Disks	100 "		
Emery Cloth "	100 "	per box	.30
Celluloid "	12 "	"	.25
Chamois "	25 "	"	.25
Paper and Cloth "	525 "	"	.75
Arthur's Corundum Disks, A to N, not mounted		per doz.	.75
" " " O to Q, " "		"	1.75
" " " A to N, mounted		"	1.75
" " " O to Q, "		"	2.75

Corundum Disks are made of two grits, viz.: Cutting and Polishing. When ordering, please specify which is wanted.

Rubber and Corundum Disks, A to N, not mounted	each	$0.10
" " " " O to Q, " "	"	.15

STUMP-WHEELS.

Stump Wheels, not mounted	per doz.	$0.75
" " mounted	"	1.75

Made in three grits: Fine for polishing, and Medium and Coarse for cutting. In ordering, be careful to specify which is wanted.

POINTS.

Corundum Points Nos. 1 to 16, not mounted	per doz.	$0.40
" " " " mounted	"	1.40
" Points, Butler's not mounted	"	.40
" Cavity Points, " "	"	.40
" " " mounted	"	1.40
" Points, Morsman's, not mounted	"	.40
" " " mounted	"	1.40
Rubber and Corundum Points, not mounted	each	.06

STRIPS.

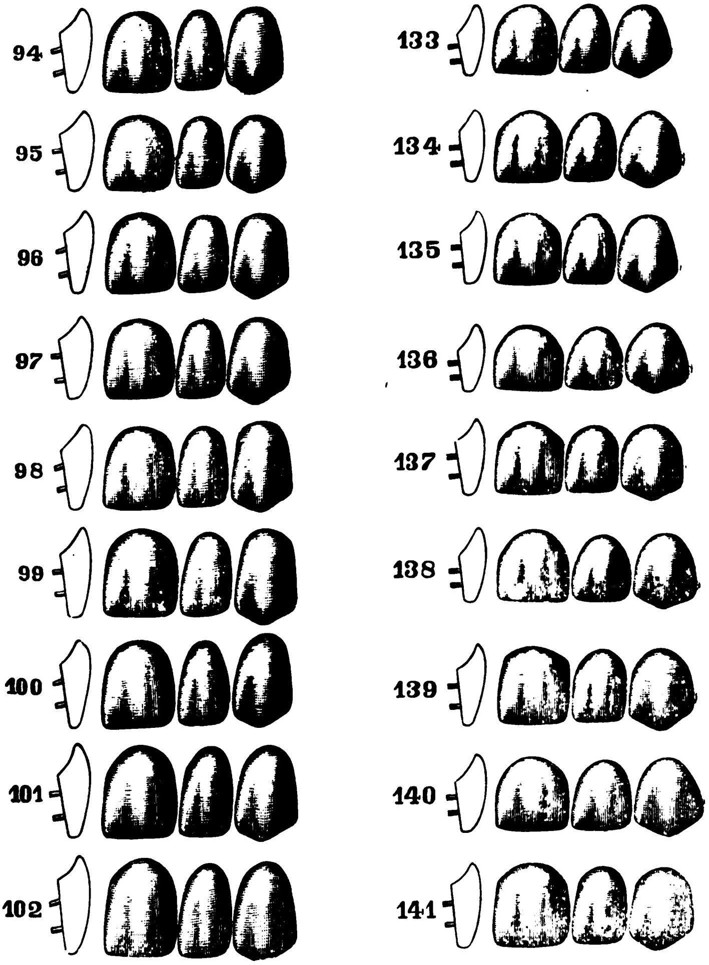
Sand-Paper Strips	per box of 144 strips per doz. "	$0.25 .03
French Emery-Paper Strips		
Cuttle-Fish " "		
Emery-Cloth Strips	per box of 144 " per doz. "	.40 .04
Crocus " "		
Celluloid "	per box of 12 "	.20
Lava "	" " 100 "	.20

THE S. S. WHITE DENTAL MFG. CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

PLAIN TEETH FOR PLATE AND BRIDGE-WORK.

UPPER, INCISORS AND CUSPIDS.



A few samples of plain teeth, with wide neck, suitable for bridge-work.
Illustrated Catalogue (158 pages) of our Porcelain Teeth sent to any dentist on application.

THE S. S. WHITE DENTAL MFG. CO.,
PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

FOUNDED 1869.

TRADE MARK

GIDEON SIBLEY'S CELEBRATED ARTIFICIAL TEETH ARE THE BEST

TRADE MARK

ON ALL GUM SECTIONS.

GIDEON SIBLEY,

DENTAL DEPOT,

THIRTEENTH AND FILBERT STREETS,
PHILADELPHIA, PA.

GIDEON SIBLEY'S SPECIALTIES.

TEETH.—Prices as follows after Sept. 15th, 1889:—

Gum Teeth, per set of 14, ...	$1.25
Less than 14, 10 cts. each.	
Plain Teeth, per set of 14, ...	$1.12
Less than 14, 9 cts. each.	

QUANTITY PRICES.

	GUM TEETH.		PLAIN TEETH.
For $ 10.00	9 x 14	or	10 x 14
" 25.00	24 x 14	or	26 x 14
" 50.00	50 x 14	or	54 x 14
" 75.00	80 x 14	or	85 x 14
" 100.00	110 x 14	or	115 x 14

FELT GOLD.

Superior to foils or other forms of Gold. Trial package, $\frac{1}{40}$ oz. $1.00, $\frac{1}{8}$ oz. $4.50.

NEEDLE FOIL CARRIER.

Patent applied for. Designed for Sibley's Felt Gold, but may be used with any form of Gold. Price, $3.00.

GOLD AND PLATINUM ALLOY.

Never fails in making a perfect filling when used according to directions. $\frac{1}{3}$ oz. $1.00, $\frac{2}{3}$ oz. $2.00, 1 oz. $3.00.

ECLIPSE RUBBER.

Extra tough. Vulcanizes dark red. Per lb., $2.75.

ARTICULATORS.

Equal to any $2.00 Articulator in finish. Brass, 90c. each, nickel-plated, $1.50.

FORCEPS.

Best quality steel, all nickel-plated, guaranteed one year, $2.25, Tremont, $1.50. Send for Catalogue.

PEERLESS RUBBER DAM.

Made only from the best Para Rubber. Rolls, 5 yards long, 6 inches wide, price per roll, Thin $1.00, Medium, $1.50, Thick, $2.00.

INSTRUMENTS.

Manufactured by skilled labor. Complete assortment Burs, Drills and Excavators.

DENTAL CUSPADORS.

No. 1, heavy spun brass, nickel-plated, with gold catcher, $4.00; No. 2, light spun brass, with gold catcher, nickel-plated, $1.50.

DENTAL SYRINGES.

Metal, Chip blowers, Moffatt's, Hot Air, etc.

ANCHOR FLASKS, IMPROVED.

Brass, $1.50, malleable iron, $1.00. Postage, 25 cents extra.

DENTALIA.

A saponaceous and astringent Mouth-Wash. 25c. each, $3.00 per dozen. Send for sample free by mail.

STUDENTS' INSTRUMENT CASES.

Substantially made and finely upholstered, $6.00 each.

MEDICINE CASES.

For emergencies, $3.00 each.

PURPOLENE VARNISH.

For preventing plaster adhering to casts when vulcanizing. 25 cents per bottle, 10 cents extra by mail.

SHELLAC VARNISH.

25 cents per bottle. 10 cents extra by mail.

SANDARACH VARNISH.

25 cents per bottle. 10 cents extra by mail.

LIQUID SILEX.

20 cents per bottle. 10 cents extra by mail.

MERCURY.

Strictly pure, in *special pattern glass bottle and holder combined.* Price, per ¼ lb bottle, 50 cents.

JAPANESE BIBULOUS PAPER.

Per 100 sheets, 40 cents.

DENTAL SCISSORS AND SNIPS.

Manufactured of best steel, 90c. to $1.50.

GILLING TWINE.

Best imported, per skein, 10 cents.

DISKS.

Sand Paper, per box, 12 cents. 10 boxes for $1.00.

SPUNK.

Our own importation of selected Velvet Spunk, per oz., 20 cents.

ENGINE OIL.

Oil that will lubricate and not gum. Nicely perfumed, per bottle, 25 cents.

NERVE BROACHES.

Per package of 1 dozen, 75 cents.

A full stock of GOLD FOILS, CYLINDERS, ALLOYS, AMALGAMS, CEMENTS and DENTAL GOODS of all descriptions, always on hand.

PURPOLENE VARNISH
USED IN VARNISHING PLASTER MOULDS FOR VULCANIZING RUBBER, DENTAL PLATES, RUBBER STAMPS, &C. &C.
DIRECTIONS.
GIDEON SIBLEY.
DENTAL DEPOT.
13th & Filbert Sts. Phila. Pa.

Purpolene Varnish

Prevents the plaster from adhering to the rubber when vulcanizing, imparting a smooth surface.

PRICE 25 CTS. PER BOTTLE.

1 oz. Troy, $3.00.

SIBLEY'S

TRADE MARK.

GOLD AND PLATINUM ALLOY.

This Alloy is prepared under the supervision of an eminent analytical chemist, which enables us to guarantee the chemical purity of the metals used.

Having been subjected to the severest tests before offering it to the Dental Profession, it has been demonstrated that it will not shrink or expand, nor discolor in the mouth, and can be used in the Front Teeth with better results than any other Filling except Gold.

PRICES:

1 Oz., $3.00, 2 Ozs., $5.50, 4 Ozs., $10.00.

Manufactured by

GIDEON SIBLEY,
DENTAL DEPOT,
13TH & FILBERT STREETS,
PHILADELPHIA, PA.

Sibley's Gold and Platinum Alloy

Never fails in making a more perfect filling than possible with any other alloy or amalgam (when used according to directions).

TRY IT FOR YOURSELF.

No. 1 Articulator. Reduced in Price.

FORMERLY $1.00. *REDUCED TO 90 CENTS.*

Handsomely Finished and Nickel-Plated, $1.50.

If sent by mail, postage extra, 10 cents.

These Articulators are equal in all their fitting parts to any $2.00 Articulator, and are superior in weight, strength and fittings to any sold at $1.00 or 90 cents.

We make but one grade, and that we make well.

GIDEON SIBLEY,
DENTAL DEPOT,
13th & Filbert Streets, Philadelphia, Pa.

No
1/8 OZ
C. H. HUBBARD'S
CORRUGATED
ONLY MEDAL EVER AWARDED FOR GOLD FOIL
INDUSTRIAL EXHIBITION ASSOCIATION OF TORONTO
3 FORMS.
CORRUGATED. COHESIVE. SOFT.
1000 FINE GOLD FOIL
TORONTO
ONTARIO

❋ GOLD FOIL ❋

C. H. Hubbard's

Corrugated, Soft Cohesive and Non-cohesive

GOLD FOILS

Put up in ⅛ Ounce Books.

For Sale in all Numbers, from No. 3 to 60, $3.50 per Book

My Gold Foils, for which the demand is rapidly increasing, are equal to any in the market, and cannot be surpassed in quality, as I guarantee them to be absolutely pure. I can refer to many of the principal practitioners in the Dominion, who have used these Gold Foils constantly for several years, and who state that they are equal to the best, superior to many manufactured, and consequently much cheaper.

The **Soft Non-cohesive Gold Foil** will readily compact into a solid filling without having the tendency, complained of by some when using Cohesive Foils, to become rigid and difficult to consolidate.

Another great advantage the **Non-cohesive Foil** has over other kinds is, that it can be readily made Cohesive whenever the operator wishes to do so, by gently annealing it over the spirit lamp before using. By the use of this Foil the operator is at once in possession of a Foil which is either **Non-cohesive** or **Cohesive** at pleasure.

CLAUDIUS ASH & SONS'

Dental Rubbers.

All the following Rubbers are made under our own personal supervision, and are thoroughly tested for strength, color, etc., before they are offered for sale. The materials of which they are composed are of the best and purest that can be obtained, and are quite free from everything which can injuriously affect the gums or general health of the wearer.

FOR COATING.

	Color.		
Improved Pink, Shade No. 1	Deep pink	per lb.,	$7 50
" " " No. 2	Pale "		
New Pink	Deep "	"	6 00
No. 1x	" "	"	6 00
No. 1	Pale "	"	6 00
No. 2x	Deep "	"	5 00
N.V.	" "	"	6 00

The time recommended for vulcanizing each kind is 75 minutes.

FOR BASE.

	Color.		
S. P.	Deep pink	per lb.,	$4 00
White, for Side Blocks, etc.	Bone color	"	4 00
Child's G.	Bright red	"	4 00
A. E. Elastic	Dark brown	"	4 00
W. Elastic	" "	"	4 00
Whalebone, No. 1	" "	"	4 00
" No. 2	Light "	"	3 50
Solid Base	Pink "	"	3 50
Flexible Base	Light "	"	3 50
Dark Red	———	"	3 50
Dark Elastic	Horn color	"	3 50
Red	———	"	3 00
Orange	———	"	3 00
Black	Horn color	"	3 00
Dark Brown	———	"	3 00
Brown	———	"	3 00
Improved Black	Jet black	"	3 00

The time recommended for vulcanizing each kind is 75 minutes, at a temperature of 315° Fahrenheit.

SPECIAL—FOR TENDER GUMS, &c.

	Degrees Fahrenheit.	Time H.	Time M.		
Soft Pink, for lining Palates	310	1	15	per lb.,	$6 00
Soft Dark Red " "	310	1	15	"	3 50
Vela, for making Artificial Palates	270	6	00	"	6 00

All the above Rubbers are supplied in ½-lb. Boxes.

6, 7, 8 and 9 BROAD ST., GOLDEN SQUARE, LONDON, ENGLAND.

ESTABLISHED OVER 70 YEARS.

❋ GOLD FOIL ❋

C. H. Hubbard's

Corrugated, Soft Cohesive and Non-cohesive

GOLD FOILS

Put up in ⅛ Ounce Books.

For Sale in all Numbers, from No. 3 to 60, $3.50 per Book

My Gold Foils, for which the demand is rapidly increasing, are equal to any in the market, and cannot be surpassed in quality, as I guarantee them to be absolutely pure. I can refer to many of the principal practitioners in the Dominion, who have used these Gold Foils constantly for several years, and who state that they are equal to the best, superior to many manufactured, and consequently much cheaper.

The **Soft Non-cohesive Gold Foil** will readily compact into a solid filling without having the tendency, complained of by some when using Cohesive Foils, to become rigid and difficult to consolidate.

Another great advantage the **Non-cohesive Foil** has over other kinds is, that it can be readily made Cohesive whenever the operator wishes to do so, by gently annealing it over the spirit lamp before using. By the use of this Foil the operator is at once in possession of a Foil which is either **Non-cohesive** or **Cohesive** at pleasure.

STATIONERY FOR 1890.

We offer you unusual inducements for furnishing you with stationery for the coming year.

THE DIAGRAM APPOINTMENT BOOK

for those who desire to use a diagram, is not equalled, combining simplicity and neatness. We are furnishing unusually fine paper and good binding, with the inducements of low prices ; being able to do so on account of their large sale, and, in consequence, being able to buy largely at one time, giving you the benefit of low figures.

Cloth, 50 cents. Leather, 75 cents.

THE No. 1 APPOINTMENT BOOK

is well known to all practitioners. We have improved on the old style by adding a memorandum and cash account for each month. Our claim is that we give an extra fine paper and leather binding at prices one-third to one-half less than other dealers. We pride ourselves upon the manner in which this book is made.

Without Tuck, 50 cents. With Tuck and Pocket, 75 cents.

All regulated offices of course must have a ledger, and who is not pleased with the

ALLPORT REGISTER,

so simple and neat, and, as we sell it, so well made, we are looking for a larger sale than ever for this popular book.

In half Roan,	**300**	**pages,**	**1**	**account to page**	-	-	**$2.00**
" "	**172**	"	**2**	**accounts** "	-	-	**2.00**
" "	**340**	"	**2**	" "	-	-	**3.00**
" **Turkey,**	**340**	"	**2**	" "	-	-	**3.50**

All properly indexed. Those who use this register should have our No. 3 or No. 4

BILL HEAD,

which is similar. The No. 4 is the best, as it is not printed, but ruled, making with the regsiter a complete outfit.

No. 4 printed with your name and address for $1.15 per 100, or 500 for $3.75.

EXAMINATION TABLETS

are being more and more used ; they cost such a trifle—a chart of three months can be made for one cent—that it is economy and satisfaction to use them.

30 cents per Pad of 100.

The WILMINGTON DENTAL Mfg. Co.,
PHILADELPHIA, PA.

AN INCREASE OF 80 PER CENT.

will be made to the reading matter of each number of the

ITEMS OF INTEREST

- FOR 1890 -

The January number appears enlarged and in a new dress.

T. B. WELCH, M.D., Editor.

—PUBLISHED BY—

THE WILMINGTON DENTAL MANUFACTURING COMPANY,

No. 1413 Filbert St., Philadelphia, Pa.

OUR journal enters upon its twelfth volume, after a unique history in dental journalism, in which we have been successful, having met a long-felt want in this rushing age—conciseness.

We ask you to consider its general character and see if becoming a subscriber will not be of advantage to you. If you prefer exhaustive treatises on abstruse subjects, and long, detailed reports of conventions, you will not like it; but if you find it profitable to have a dental magazine crowded with the most important current thoughts of the profession, we think you will like the ITEMS OF INTEREST. Our contributors please us by giving thoughts and experiences of the most vital interest, and in selecting from our excellent contemporary journals we take the most intrinsically valuable. No pains are spared to make the contents of each number an intellectual treat.

The publication of ITEMS OF INTEREST is as expensive as journals costing two dollars and fifty cents a year, and our personal labour on it is certainly equal to the labour given to any of them. At our price of subscription it was a long time before our expenses were met by our subscribers, but we are now realizing what we anticipated—that a good, low-priced dental magazine could be made to pay.

We look for a largely increased circulation for 1890. Our price, $1.00 per year, being so small as hardly to be considered, yet it is only by having thousands of subscribers that we can publish the journal at this price. Subscriptions are only taken to date from January or July numbers. Foreign subscriptions in Postal Union countries are 50 cents extra. Will you not join us ?

BOSTON DENTAL MANUFACTURING CO.'S

VULCANIZER.

This vulcanizer is made of the best bronze, so-called "gun-metal," and is tested at one thousand pounds hydraulic pressure. It will hold three flasks of any kind with Donham spring, and allow plenty of room for handling.

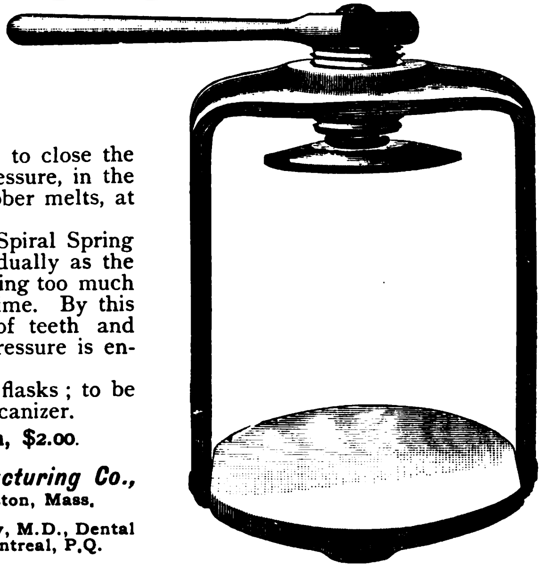
The sacking is moulded instead of being cut in strips, and will last for years without being renewed. The cover can be screwed steam tight without the use of a wrench, the same being necessary only to open after being heated. The small quantity of water used (one gill) produces vulcanizing by steam, instead of water, thus producing better results.

The bed-plate jacket which is screwed to the bench, allows an easy and ready method of handling.

Price - $16.

Improved

Rubber Compress.



This press is designed to close the flask with a uniform pressure, in the Vulcanizer when the rubber melts, at about 250 degrees Fahr.

By means of the 30lb Spiral Spring the flask will close gradually as the rubber softens, thus avoiding too much pressure at the wrong time. By this method the breaking of teeth and blocks by unnecessary pressure is entirely avoided.

Made for two or three flasks; to be used in any kind of a Vulcanizer.

Price, with Wrench, $2.00.

Boston Dental Manufacturing Co.,
167 Tremont Street, Boston, Mass.

For Sale by Geo. W. Lovejoy, M.D., Dental Depot, 756 Palace St., Montreal, P.Q.

THE **Amalgam** here presented to the Profession is composed of **Pure Copper and Mercury only;** and its superiority is due to the extreme care exercised in its preparation, and its entire freedom from impurities of any kind, rendering it powerless to discolor the tooth substance when properly inserted, and making it the **cleanest Amalgam** to handle ever prepared.

It requires **no washing,** will set in from **five to fifteen minutes,** and possesses, to a remarkable degree, that **fine-grained plasticity** so desirable in Amalgam.

It is antiseptic in its character, absolutely unshrinking, and will not expand, bulge or change its shape after it has hardened. It has one objectionable feature, in common with all Amalgams containing copper, **it turns black,** but, unlike them, **will not discolor the tooth.**

This Amalgam is not intended to supersede or do away with the use of amalgams made from alloys. It has a special mission of its own to perform, and that is to save certain classes of teeth, and to fill certain forms of cavities where, experience teaches us, other materials fail.

All shallow cavities out of sight, such as we find upon the buccal, lingual or approximal surfaces of molars near the margin of the gum, may be advantageously filled with it.

Rapidly-decaying wisdom teeth and molars of a soft chalky nature do better with a copper filling than with any other, and it is the best filling known for deciduous molars.

There is no waste in using this Amalgam as the smallest scraps can be worked over and used.

Prepared and for Sale by

GEORGE H. WEAGANT, L.D.S.,

CORNWALL - - ONTARIO.

And by all Dental Dealers.

Price $1.75 per Ounce Troy. ***Six Ounces for $9.00.***

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
TRADE MARK

This **AMALGAM** has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications should be addressed accordingly.

Prices, 1 oz. $3.00; 2 oz. $5.50; 4 oz. $10.00. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

STERLING AMALGAM.

THIS is the same Alloy we have sold for seventeen years, and is eminently worthy of the high position it enjoys of being the BEST ALLOY that has ever been produced. No better guarantee can be produced than the constantly increasing demand, and the largest sale, of any Alloy in the market. Our Formula is Gold, Platinum, Silver and Tin. It it more Plastic; works the Easiest; keeps the Brightest in the mouth; wears the Longest; does not shrink or corrode; gives general satisfaction to the patient; and, while I do not call it a Gold or Platinum Alloy, I warrant it to contain as much of those metals as any alloy there is made, and to give the best satisfaction of any.

PRICE:

Per ounce,	*$3 00*	*Per 2 ounces,*	*$ 5 00*
" 2-3 ounce,	*2 00*	*" 5 "*	*12 00*
" 1-3 "	*1 00*	*" 10 "*	*20 00*

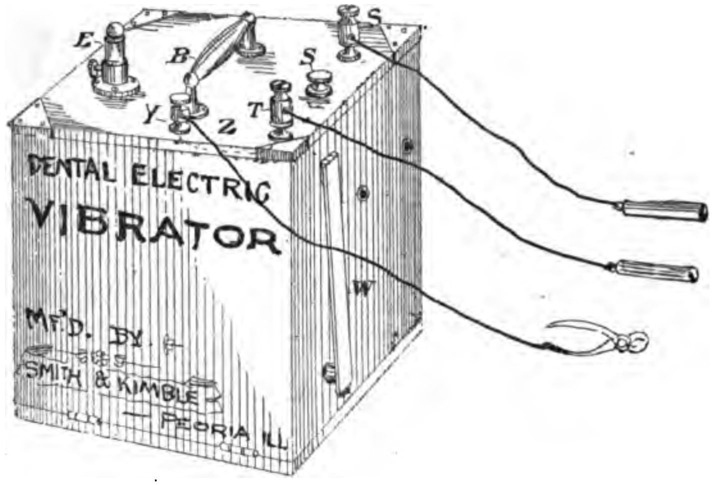
SENT POST PAID ON RECEIPT OF THE CASH.

GEORGE P. DAVIS,
ROCHESTER, N.Y., U.S.A.

IMPORTANT TO

THE DENTAL PROFESSION.

* * * * * * *



DENTAL ELECTRIC VIBRATOR.

Absolutely Painless EXTRACTION OF TEETH.

The above cut is an EXTREMELY rough one, but still it answers a purpose. The instrument itself is very handsome and ornamental, while its usefulness is beyond description. Price of a single instrument is $75.00 in cash (gold or American notes). For circulars and full information address

J. FREDERICK BABCOCK, D.D.S.,

Secretary and Treasurer,

Canadian Dental Electric Vibrator Company,

P.O. BOX 573 - - BANGOR, MAINE, U.S.

- THE STRONGEST -

Respecting Artificial Teeth—everything else being equal—The STRONGEST are the BEST.

Johnson & Lund's Improved Artificial Teeth

After twenty eight years' practical experience in the manufacture of **Porcelain Teeth**, we are enabled to substantiate the claim which we commenced to make some years ago, and which we have maintained and do now maintain, without the slightest fear of contradiction, viz: that

Johnson & Lund's Improved Artificial Teeth.

—ARE THE—

STRONGEST IN THE WORLD.

In making this claim we make no exceptions, either as to *make* or *nationality*, and earnestly request the profession to give them the severest test required by the exigencies of the business, and then to judge the results in comparison with the productions of the best known makers. *We do not fear the verdict*

MESSRS. JOHNSON & LUND: *Rochester, N.Y., June* 23, 1883.

DEAR SIRS,—We wish to say a word or two in regard to your production of **Artificial Teeth.** We have used them for two years almost to the entire exclusion of those of other makes, and find them better in **adaptability** and **above all** in **strength** to all others.

During the time above mentioned we do not remember a single case of cracked gums, and the gums are thinner than others with which we are acquainted. This matter of strength is of more import, as we use nothing but black rubber, which has far greater powers of contraction than any of the rubbers coloured with pigments; nor do we remember the return of a plate broken in actual use. They are as good in colour, form, and appearance as any make we know of, and united to this we think possess greater strength, even though the gums are often so thin as to look fragile as an egg shell.

Very little grinding on the inside of the section has ever to be done even in the most difficult cases of prominent gums. Yours truly,

(Signed) WALTER & BEEBEE.

To those who are using our make of teeth we say nothing, as they are as well aware of the qualities of our goods as we are, but to those *not* using them, and *who are annoyed by the teeth they do use cracking in vulcanizing*, or breaking in wear to an unusual degree, we say, give **Johnson & Lund's Improved Artificial Teeth** a trial—*Demand* them at the depot you are patronizing, and if they are not forthcoming *write directly to us*, and we will either supply you or direct you where you can secure them nearer home.

Respectfully,

JOHNSON & LUND.

PRINCIPAL DEPOT AND MANUFACTORY,
620 Race St., Philadelphia.

BRANCH OFFICE,
514 Wabash Ave., Chicago.

CANADIAN AGENCY:
J. H. CHAPMAN, 2294 St. Catharine Street, Montreal.

JOHNSON & LUND'S AMALGAMS.

EXTRA AMALGAM.

Gold and Platina Alloy.

It retains its brightness. It works with great plasticity and packs densely. It possesses the greatest possible freedom from shrinkage. Impervious to the secretions of the mouth.

PRICES.

One Ounce Package	$3 00
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This College has accepted the requirements of the National Association of Dental Faculties with regard to admission and graduation of students. (See announcement for 1889-90, which can be procured from the Dean.)

The Spring Course commences on the second Monday in March, and continues until the first of July. Fee, $50, which will be credited upon the fee for the regular session.

The Fall Course will commence on Monday, September 9, and continue until the first of October, and will be free to those who matriculate for the regular session.

Attendance upon the Spring and Fall Courses will be deemed equivalent to the term of pupilage under a private preceptor.

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The *Winter Session*, 1889-90 begins October 1st, 1889, and ends on May 1st, 1890.

The *Spring Session*, 1890, begins on May 2nd and ends the last of June. The work of this session is entirely practical; no lectures are delivered.

EXAMINATIONS.

At the close of the first year examinations in Chemistry and Materia Medica are held, which, if the student fails to pass, a second examination is afforded at the beginning of the next winter session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty will be admitted to the graduation class upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of Practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

EXPENSES—WINTER TERM.

Matriculation fee, $5; Tuition fee, first year, $100; second year, $100. Fee for Dissection, $10; Graduation fee, $30. For each additional year, $100.

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The College has formed an alliance with the College of Physicians and Surgeons, by whch its students are privileged to attend all lectures and clinics. The patients of this medical school numbered last year over 40,000.

Graduates of the Baltimore College of Dental Surgery are required to attend but *one session* at the College of Physicians and Surgeons prior to presenting themselves as candidates for the degree of M.D. (See Catalogue.) In accordance with the resolution adopted by the National Association of Dental Faculties in the City of New York on the 4th of August, 1884, and which goes into effect for the session of 1885-86, the qualifications for entering the Junior Class are a preliminary examination in the ordinary English branches.

Terms of Graduation.—Attendance on two Winter courses of lectures in this College, as equivalent to one of these we accept *one course* in any reputable Dental College. *Graduates in Medicine* who have attended one Winter Course in this College, and have passed one year, inclusive of the Winter Course, in the practical work of the Infirmary and Laboratory, will be permitted to present themselves for graduation.

Beneficiary Students.—Each State Dental Society is privileged to send one Beneficiary Student to this College at one-half the regular tuition fees. This has been for some years an established feature of this College.

Fees.—Matriculation (paid once only), $5. Tuition fees, $100. Diploma fee, $30. Dissecting fee, $10.

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Fees.—Tickets, including the Demonstrators', $100; Matriculation, inclusive of Syllabi for home study (paid but once), $5; Diploma, $30. Board, $4 to $6 per week.

Special Notice.—Commencing with the present session, 1888-9, the usual preliminaries for the degree of the College will be so divided as to enable the student to take his examination on Applied Anatomy, Chemistry, and Mechanical Dentistry at the end of the first year, and to complete them at the end of the second on the branches of Physiology, Dental Pathology and Therapeutics, and Operative Dentistry.

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April, 1890.

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Caulk's and Mood's Cement, etc. Vulcanizers, Lathes, Articulators,
S. S. White's Dental Engines, Pluggers, Forceps, Rubber Dam,
Operating Chairs, Excavators, Corundum Wheels, Brushes,
Files, Celluloid Plates, and all articles used
by the Profession.

Stubb's Finishing and Separating Files, Gum Lancets, Pearl and Shell.
Imperishable Mouth Mirrors.

Artificial Teeth

A Large and Well-assorted Stock of S. S. White Dental Manufacturing Co.'s, Justi's, Ash's, and other Makers' Gum and Plain Teeth.

American GOLD FOILS and PELLETS kept constantly on hand, and all at LOWEST RATES.

ALL KINDS OF GAS APPARATUS FOR SALE

GAS CYLINDERS REFILLED

BEST DENTAL PLASTER

By the Barrel or Box.

Goods of every description obtained to order at current prices.

☞Dentists about to begin the practice of their profession will find it to their advantage to examine our stock before purchasing an outfit.

All Goods sold as low as any dealer in Canada.

C. H. HUBBARD,

44 Adelaide St. West.

IMPORTANT DENTAL BOOKS

FILLEBROWN—OPERATIVE DENTISTRY, 320 Illustrations,	$2.50
STOCKEN'S DENTAL MATERIA MEDICA, 3rd Edition, Cloth,	2.50
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WILLIAMSON & CO.
MEDICAL BOOKSELLERS
TORONTO

TORONTO PUBLIC DENTAL LABORATORY

41 MAJOR STREET, TORONTO.

EDWIN T. CAMPBELL - - - Proprietor.

I have removed my Laboratory from Walton Street to 41 Major Street, where I can execute with greater despatch and more perfected means. Gold, Rubber, Celluloid and Continuous Gum, Plate Work, Gold and Porcelain Crowns, Bridge Work, Regulating Appliances, and every description of mechanical dentistry.

Soliciting your patronage,

I am, yours respectfully,

Telephone 2162. **EDWIN T. CAMPBELL.**

SPECIAL NOTICE.

'System of American Dentistry'

Bound in Sheep, Latest Edition, FOR SALE.

This is a good chance for any one wishing to procure this valuable work cheap.

APPLY—

C. H. HUBBARD,
44 Adelaide St. West, TORONTO.

CAULK'S FILLING MATERIALS.

ESTABLISHED 1877.

GRAY. YELLOW. LIQUID. MEDIUM. LIGHT.

FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, $2.00 per Pkg.
TWO COLORS and LIQUID.—Gray and Yellow, ... 1.50 " "
ONE COLOR and LIQUID.—Gray, Yellow, Medium, Light or Gum, 1.00 " "

The Powder (any color) and Liquid of CAULK'S DIAMOND CEMENT sold separately, at 50 cents per Bottle.

THIS COMPOUND STANDS WITHOUT A RIVAL.

USED SINCE 1877 BY LEADING DENTISTS THROUGHOUT THE WORLD.

FOR MORE THAN THIRTEEN YEARS this Cement has been used by **thousands of Dentists**, not only in **every State** and **Territory** in the **United States**, but also throughout many **Foreign Countries**, and the increasing demand shows what a valuable adjunct it has become in every practitioner's office.

FOR CROWN AND BRIDGE WORK,

and wherever a Phosphate Cement is required, it has been highly recommended, is non-irritating, non-conducting, in harmony with tooth-structure, has no shrinkage or expansion, and does not deteriorate with age.

CAULK'S PAR-EXCELLENCE ALLOY.

This GOLD AND PLATINA ALLOY is manufactured on a new principle, has won its way into popular favor, and now ranks among the best. By our new method of manufacture, there is no GUESS-WORK, the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price, $3.00 per Ounce. 2 Ounces, $5.00. 5 Ounces, $11.00.

CAULK'S WHITE ALLOY

Has been greatly improved, costing more to produce it.

This ALLOY contains NO Zinc or Cadmium; is of a peculiar grayish-white color, has good edge-strength, and will stand mastication anywhere in the mouth.

Price, $4.00 per Ounce. 2 Ounces, $7.00. 5 Ounces, $15.00.

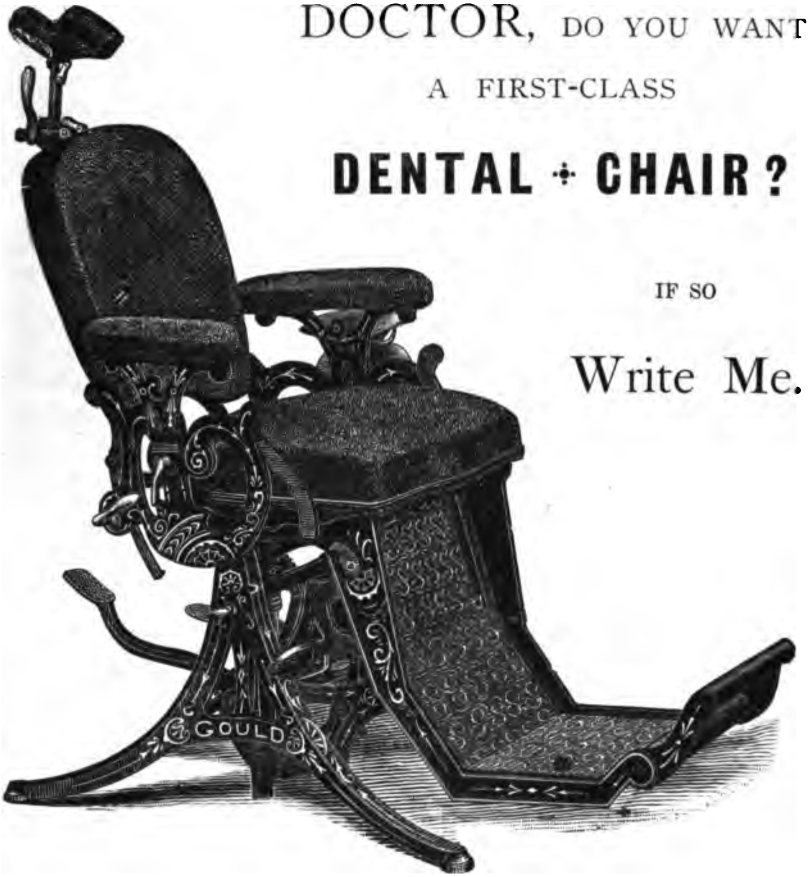
Caulk's Diamond Point Stopping and Gutta-Percha Points for Filling Roots.

Price, in 1/8, 1/4, 1/2 and 1 ounce packages, per ounce, (reduced to) $2.00.

All of Caulk's Filling Materials are sold by Troy Weight, and sent by mail.

Over 15,000 Dentists are using these Materials throughout the world. What better evidence do you wish of their Superiority and Excellence?

L. D. CAULK, Manufacturer, Camden, Delaware.



DOCTOR, DO YOU WANT
A FIRST-CLASS
DENTAL ✦ CHAIR?

IF SO
Write Me.

The 'IMPROVED' GOULD DENTAL CHAIR

A PEDAL LEVER CHAIR, HAVING ALL THE MOVEMENTS OF THE HIGH-PRICED CHAIRS, AND SOME SPECIAL FEATURES NOT POSSESSED BY ANY OTHER. NO CRANKS USED.

PRICES FOR THE "IMPROVED" GOULD.

No. 32,	Upholstered in "Fraize" Mohair Plush. Base and large iron parts highly finished and decorated in gold bronze, head-rest and small iron parts nickel-plated	$110 00
No. 34,	Same as No. 32, Upholstered in Plain Mohair Plush	100 00
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No. 36,	Same as No. 32, Upholstered in Embossed Maroon Leather	100 00
No. 37,	Same as No. 32, Upholstered in Plain Maroon Leather	90 00
No. 38,	Same as No. 32, Upholstered in Corduroy—best quality	90 00

Remit by Draft or Money Order. Address all inquiries and orders to

C. W. MUNSON, Toledo, O.

P.S.—With every Chair is included an improved nickel-plated spittoon and attachments. Send for cuts showing five more positions of Gould Chairs.

Miscellaneous.

The doctor's claim, in France, on the estate of a deceased patient, has precedence of all others, even of the landlord.—*Register.*

There are 16,864 medical men and 514 dentists in Germany, among a population of 46,840,587 inhabitants. There are 41,671 chemists, and 2,737 hospitals.—*Register.*

WHITE CHLOM PERCHA.—The great majority of operators use red base gutta-percha for root filling. A much better solution is made with the white gutta-percha filling material, which has less shrinkage than the red. Roots filled with gutta-percha, when cut open, have more odor than those filled with oxychloride of zinc.—*Archives.*

PORCELAIN FILLINGS.—The advantages are as follows: 1. Resistance to the mechanical action of mastication; 2. Resistance to the termial action of the mouth; 3. Facility of introduction and consolidation; 4. Harmony of color; 5. Absence of all galvanic, chemical or vital action upon the teeth or general system; 6. Absence of all heat conducting property.

Special to Advertisers.

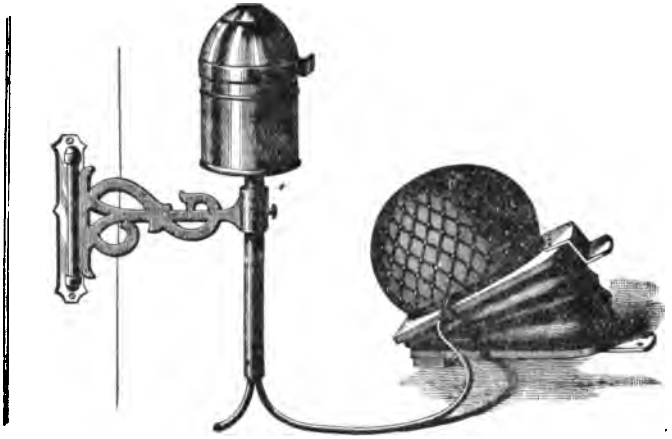
ADVERTISERS will please give notice that they wish **changes** in their advertisements within **two weeks from receipt of Journal.**

All cuts, plates, etc., required for such changes, must be received by publisher by the **15th of month succeeding each issue of Journal.**

Your kind attention to this will greatly oblige.

THE PARKER IMPROVED GAS FURNACE

DRS. A. H. PARKER and A. H. STODDARD, Inventors.



IN offering this Furnace to the profession, the inventors feel that it supplies a long-felt want. Many have been detered from entering the field of tooth-carving, porcelain-filling, and continuous-gum work by the fact that it was attended by so many difficulties. This has been partially obviated of late years by the introduction of Gas Furnaces, but most of these have been so complicated, expensive, have required so long a time for baking and so much power to furnish the air-blast, so as to be almost impracticable.

In this Furnace the greatest possible simplicity has been attained. The reduction in size, reduces the time of fusion to the minimum (requiring with ordinary good quality of city gas at fair pressure from ten to twelve minutes to fuse continuous-gum or the hardest porcelain). The quantity of gas consumed is also reduced to a minimum, and the air-blast is furnished by an ordinary foot-bellows.

DESCRIPTION.—The Furnace is 4½ inches in diameter and about 6 inches high. It is made of Russia iron with fire-clay interior. The top is dome-shaped, made entirely of fire clay, as is also the tray. It is held by a bracket attached to the wall, and may be swung out of the way when not in use. The burner and bracket are bronzed and nickeled, making the Furnace a neat as well as a useful addition to the operating room and laboratory. It is so constructed that there is perfect combustion, thus preventing "gasing" and disagreeable odors. It is suitable for the largest continuous-gum cases, carved work, porcelain fillings, or inlays, and is particularly useful for heating up cases and soldering and fusing metals.

PRICE:

Furnace, including Brackets, two Trays, Fire-clay for repairing, etc.,	**$15.00**
Foot-Bellows, No. 9 B, extra	**7.00**

PARKER'S BODIES AND ENAMELS,

For Tooth Carving, Porcelain Fillings, Inlays, Etc.

Bodies—Nos. 1 to 6 inclusive (six ounces). Enamels—Nos. 1 and 2 (two ounces), giving a range of twelve colors.

PRICE, for complete outfit of Enamels and Bodies, **$8.00**

THE S. S. WHITE DENTAL MFG. CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

THE WORLD'S PREMIUM TEETH.

A STATEMENT OF FACTS.

Abundant justification for the bestowal of the above appellation upon our Porcelain Teeth is found in the long line of first awards which they have received.

Starting with a Gold Medal, awarded at the American Institute Exhibition at New York, in 1848, the list of testimonals of similar character has steadily grown, no year having passed without contributing its quota. Wherever and whenever our Teeth have been placed in competition they have carried off the honors.

This is emphatically true of the Great World's Fairs, beginning with the first (Crystal Palace), held in London in 1851, and ending with the Cotton Centennial at New Orleans—eleven in all. Whenever graded premiums, denoting degrees of merit, have been granted, we have uniformly received the highest.

Three conspicuous examples may be given—Paris, 1867; Vienna, 1873; Paris, 1878. At the first Paris Exposition Universelle, in 1867, a Gold Medal was awarded to Samuel S. White. No other American manufacturer of porcelain teeth was similarly honored. At Vienna, Gold, Silver, and Bronze Medals were conferred to distinguish degrees of merit, but above and beyond even the Gold Medal was the Grand Diploma of Honor, which was conferred as the "peculiar distinction of eminent merits." Of the hundreds of individual exhibits from the United States only four were esteemed worthy of this "peculiar distinction." Medals, especially those of Bronze, were lavishly bestowed. The Grand Diploma of Honor, the "only really valuable distinction," was awarded to SAMUEL S. WHITE. It seems necessary, even at this date, to repeat the statement that the highest award received by any other manufacturer of Porcelain Teeth was a Bronze Medal. At the Paris Exposition of 1878, graded medals were conferred. In the department of Dentistry four medals were granted to exhibitors from the United States, as given below:

GOLD MEDALS.

"**WHITE, SAMUEL S., Philadelphia,** Porcelain Teeth, Dental Instruments, and Chairs, Foils, etc."

SILVER MEDALS.

No Silver Medals were awarded in the Department of Dentistry.

BRONZE MEDALS.

"Abbey, Charles & Sons, Philadelphia, Pa., Dentists' Fine Gold Foil.

"Allen, John & Sons, New York City, Artificial Dentures.

"Justi, H. D., Philadelphia, Pa., Dental Instruments and Appliances, and Teeth."

In the light of the foregoing facts a Bronze Medal would seem to have small claim to the honor of "First Medal," or "Highest Award," at the Vienna Exposition, or the Paris Exposition of 1878.

Most of the World's Fairs, besides those already mentioned, conferred but one medal on all alike whose exhibits were deemed worthy of award, relative merit being indicated, if at all, by discriminating reports of the Judges. The American Centennial, Philadelphia, 1876, is a type of these.

The announcement by an exhibitor that he received the "First Medal" at the Centennial is evidence either of misapprehension of the system of awards or of wilful intention to mislead. Every medal conferred was of bronze. The highest award could only be determined by comparing the Judges' Reports on the various exhibits. In proof of our claim that we received the highest award, we submit a copy of the Official Report on our exhibit:

GROUP NO. 24.

PRODUCT: PORCELAIN TEETH. EXHIBITOR, SAMUEL S. WHITE, PHILADELPHIA, PA.

The undersigned, having examined the product herein described, respectfully recommend the same to the United States Centennial Commission for award, for the following reasons, namely:

1. That while equal to all others in color, texture, and translucency, they are DECIDEDLY SUPERIOR in a faithful reproduction of the physiological characteristics of the natural organs, both in the individual teeth and relatively to the entire set.

2. Their conformation with reference to close and easy adaptation to the maxillary arch shows careful study of the needs of both patient and operator.

3. For the various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, and thereby disarming suspicion of their artificial character.

4. For the skilful distribution of tooth-material in such manner as to secure the greatest amount of strength with the least bulk and weight, and for the peculiar form and insertion of the platinum pins. For the maintenance of these good qualities, through an immense variety of size, color, and form of each class of teeth, EXCELLING ANY OTHER EXHIBIT.

[Signed], C. B. WHITE, M.D.
J. H. THOMPSON, M.D.
W. ROTH, M.D.
Surgeon-Gen'l, Saxony, Ger.
ERNST VON FLEISCHEL, M.D.

One Hundred and Eight First Premiums—and we mean **FIRST**; no award being reckoned as a first premium which was not the highest in our class—establish our claim that our Porcelain Teeth are justly entitled the World's Premium Teeth.

A Catalogue of our Porcelain Teeth, showing over 1700 moulds, sent, on application, to any dentist.

The S. S. White Dental Mfg Co.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

IMPROVED DIAMOND DISKS, WHEELS AND POINTS.

Patented May 1, 1877.

Diamond Disks, Wheels, and Points, when properly made, are the perfection of clean, sharp, rapid cutting devices for dentists' use. We have recently made considerable improvements in their manufacture, so that for those we are now supplying we claim marked superiority over any others now or heretofore on the market in all the features that make them valuable. They are made of copper charged with diamond.

In using them two rules should be strictly adhered to. They must not be run dry, and they must not be pushed. If kept wet when in use, they will cut faster and last longer. If too much pressure is applied, they will chatter, or jerk, or refuse their office. They should simply be held to their work and allowed to "feed" themselves.

IMPROVED DIAMOND DISKS.

Regular.—Charged all over. Will cut as well on the edge as on the sides. Two sizes, ¾ and ⅞ inch.

PRICE, EACH $1.00.

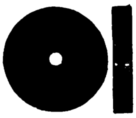
Safe-Side.—Charged on one side only, the other being made smooth or "safe," thus doing away with the need of a shield. Two sizes, ¾ and ⅞ inch.

PRICE, EACH $1.00.

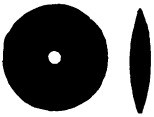
Fissure.—Will cut on both sides and on the edge the same as the "Regular" Disks. They are made in one size only, $\frac{5}{16}$ inch diameter. The centre holes are made sufficiently large to admit the screw of Mandrels Nos. 303 and 313. They can also be used on Mandrels No. 304 and 314 by properly centering the Disk before tightening the screw.

PRICE, Each 75 Cents.

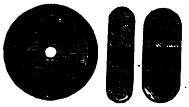
IMPROVED DIAMOND WHEELS.



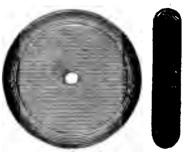
No. 1.
Square Edge.



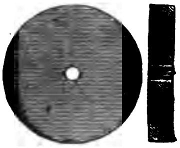
No. 2.
Knife Edge.



Nos. 3 and 4.
Round Edge.



No. 5.
Round Edge.



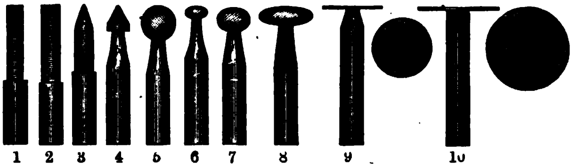
No. 6.
Round Edge.

The value of Diamond Wheels in heavy work, as the dressing of roots, is well known. Made in six sizes and forms. Nos. 1 and 2 are charged all over; Nos. 3, 4, 5, and 6 on the edge only, with smooth sides.

PRICES.

No. 1,	Square Edge,	½ inch diameter,	$\frac{3}{32}$ inch thick	each	$1 50
" 2,	Knife "	" " "		"	1 50
" 3,	Round "	" " "	$\frac{3}{32}$ inch thick	"	1 00
" 4,	" "	" " "	$\frac{6}{32}$ " "	"	1 25
" 5,	" "	¾ " "	$\frac{4}{32}$ " "	"	1 75
" 6,	" "	" " "	" " "	"	1 75

IMPROVED DIAMOND POINTS.

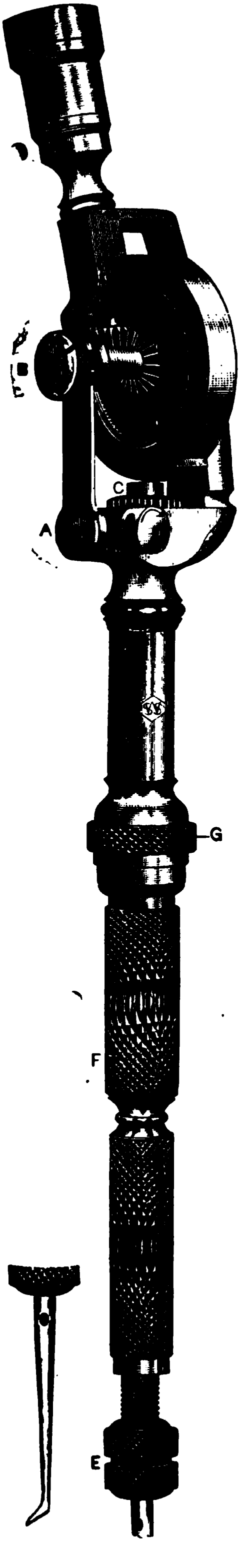


1 2 3 4 — 50 cents each. 5 — 75c. 6 7 — 50c. 8 9 — 75c. 10 — $1.00.

The forms of these Diamond Points were selected specially for their applicability to the needs of crown and bridge workers, to whom they will be invaluable. The Points are charged all over.

THE S. S. WHITE DENTAL MFG CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.



THE BONWILL

IMPROVED MECHANICAL MALLET No. 1,

FOR SOCKET-POINTS.

Patented February 18, 1879: March 6, 1888. Reissue June 17, 1879.

IN this Mallet the blow is delivered by a revolving hammer, a metal wheel with a steel plate let into its rim, and projecting sufficiently to strike the head of the plunger at each revolution of the wheel. The other end of the plunger is hollow, and split in three sections, for the reception of the plugging point. It will hold securely the Snow & Lewis, Cone-Socket, or Engine-bits.

The rapidity of the blows is only limited by the speed at which the engine is run. The force of the blow can be varied by running the engine faster or slower, or by greater or less pressure on the plugging-point, or by squeezing the split portion of the case. As sent out, the Mallets are properly adjusted for use, and on no account must the hammer projection be disturbed. All the adjustment necessary is to be accomplished by turning the adjuster. This revolves a worm-gear, which moves very slowly, permitting an adjustment as close as the thousandth part of an inch. No change ought to be necessary except from wear.

The Mallet is held in the hand like a pen or pencil, with the two first fingers resting upon the squeeze-nut, and the thumb against the milled portion of the case. This manner of holding it gives complete control of the working of the Mallet. The blows may be intermitted temporarily without stopping the engine, as in picking up and placing the gold, by simply extending the fingers, thus removing the end of the plunger from contact with the hammer ; or the blows may be made almost continuous, by flexing the fingers ; or the plugging-point may be turned and directed by a movement of the thumb and fingers.

The milled portion of the case is swiveled at G, to permit change in the position of the plugging-point.

We can supply the Bonwill Mechanical Mallet with attachments for the No. 4, No. 6, No. 7, or H. & W. Hand-pieces, for the Slip-Joint Connection, and for the Bonwill Engine. The illustration shows the Slip-Joint Connection.

Directions for use with each Mallet.

PRICE - $15.00.

In ordering be sure to indicate which attachment is wanted.

THE S. S. WHITE DENTAL MANUF'G CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

- THE STRONGEST -

Respecting Artificial Teeth—everything else being equal—The STRONGEST are the BEST.

Johnson & Lund's Improved Artificial Teeth

After twenty eight years' practical experience in the manufacture of **Porcelain Teeth**, we are enabled to substantiate the claim which we commenced to make some years ago, and which we have maintained and do now maintain, without the slightest fear of contradiction, viz: that

Johnson & Lund's Improved Artificial Teeth.

—ARE THE—

STRONGEST IN THE WORLD.

In making this claim we make no exceptions, either as to *make* or *nationality*, and earnestly request the profession to give them the severest test required by the exigencies of the business, and then to judge the results in comparison with the productions of the best known makers. *We do not fear the verdict*

MESSRS. JOHNSON & LUND: *Rochester, N.Y., June* 23, 1883.

DEAR SIRS,—We wish to say a word or two in regard to your production of **Artificial Teeth.** We have used them for two years almost to the entire exclusion of those of other makes, and find them better in **adaptability** and **above all** in **strength** to all others.

During the time above mentioned we do not remember a single case of cracked gums, and the gums are thinner than others with which we are acquainted. This matter of strength is of more import, as we use nothing but black rubber, which has far greater powers of contraction than any of the rubbers coloured with pigments; nor do we remember the return of a plate broken in actual use. They are as good in colour, form, and appearance as any make we know of, and united to this we think possess greater strength, even though the gums are often so thin as to look fragile as an egg shell.

Very little grinding on the inside of the section has ever to be done even in the most difficult cases of prominent gums. Yours truly,

(Signed) WALTER & BEEBEE.

To those who are using our make of teeth we say nothing, as they are as well aware of the qualities of our goods as we are, but to those *not* using them, and *who are annoyed by the teeth they do use cracking in vulcanizing*, or breaking in wear to an unusual degree, we say, give **Johnson & Lund's Improved Artificial Teeth** a trial—*Demand* them at the depot you are patronizing, and if they are not forthcoming *write directly to us*, and we will either supply you or direct you where you can secure them nearer home.

Respectfully,

JOHNSON & LUND.

PRINCIPAL DEPOT AND MANUFACTORY,
620 Race St., Philadelphia.

BRANCH OFFICE,
514 Wabash Ave., Chicago.

CANADIAN AGENCY:

J. H. CHAPMAN, 2294 St. Catharine Street, Montreal.

JOHNSON & LUND'S AMALGAMS.

EXTRA AMALGAM.

Gold and Platina Alloy.

It retains its brightness. It works with great plasticity and packs densely. It possesses the greatest possible freedom from shrinkage. Impervious to the secretions of the mouth.

PRICES.

One Ounce Package	$3 00
Two-thirds Ounce Package	2 00
Ond-third Ounce Package	1 00

EXTRA TOUGH GOLD AND PLATINA ALLOY.

A Notable Tooth Saver.

PRICES.

Per Ounce Package	$3 00
Two-thirds Ounce Package	2 00
One-third Ounce Package	1 00

VIRGIN WHITE ALLOY FOR FRONT TEETH.

Prominent Qualities: Whiteness and Freedom from Shrinkage.

PRICES.

Per Ounce Package	$2 00
Per Half-ounce Package	1 00
Per Quarter-ounce Package	50

DENTISTS' AMALGAM.

Prepared by Dr. J. W. Moffitt.

PRICES.

Per Ounce Package	$5 00
Per Half-ounce Package	2 50
Per Quarter-ounce Package	1 25

ONYX CEMENT.

A Phosphate of Zinc.

It is the strongest, most dense, and in all respects possesses greater uniformity in all the essentials of a First-Class Filling than any other offered to the profession.

Price, Package containing 1 colour	$1 00
" " " 2 colours	1 50

Each package of the "Onyx" Cement will contain a small piece of the "Asbestos Felt," so that the operator may have an opportunity of testing its value.

CANADIAN AGENCY:

J. H. CHAPMAN,

Cor. St. Catharine St. and McGill College Avenue, Montreal.

HIGHLY IMPROVED

Modelling Composition

FOR

Taking Impressions of the Mouth, or any other purpose where a Perfect Impression is Required.

DIRECTIONS.—Soften the Composition in hot water, and when soft enough work into the desired shape with the fingers; place it in the cup, and then soften the surface with dry heat. This makes the surface softer than the main body. It takes a better impression, and hardens quicker. Should dry heat be used exclusively, wet the fingers occasionally to prevent the Composition from sticking. It is not necessary to oil the impression before pouring the plaster cast, as the composition can be easily removed by immersing for a few minutes in hot water.

No. 0—EXTRA SOFT.—This grade is for restoring any of the other grades which have become hard by frequent use. They may be mixed in hot water.

No. 1—SOFT.—This grade is for use in cold water and in tender mouths, and softens at low heat; hardens in two minutes.

No. 2—MEDIUM.—This grade is mostly used, and requires a higher heat to soften than No. 1, and sets quicker.

No. 3—For use in hot weather; requires a higher heat to soften than No. 2, and hardens quicker.

☞ **No. 2 will always be sent unless other numbers are specified.**

Price per Pound - $1.25. Per Half-Pound Box, - $0.63

Canadian Agency:

J. H. CHAPMAN, Cor. St. Catharine St. and McGill College Avenue,
MONTREAL, - - - CANADA.

JOHNSON & LUND'S DENTAL RUBBERS.

LIGHT AND BLACK RED, AND THE EXTRA TOUGH RUBBERS

ONE POUND

Extra Tough Rubber.

JOHNSON & LUND,

SOLE·PROPRIETORS.

620 Race St.
PHILAD'A.

514 Wabash Av.
CHICAGO.

PUT UP IN ONE POUND, HALF-POUND AND QUARTER-POUND BOXES.

PRICES.

Less than 5 pounds lots	per pound,	$2.75
In 5 pound lots	" "	2.48
" 10 " "	" "	2.20
" 25 " "	" "	2.00
" 50 " "	" "	1.80

No. 1, LIGHT RED. **No. 2, DARK RED.** **No. 1, BLACK.**

PRICES.

Less than 5 pounds	per pound,	$2.25
In 5 pound lots	" "	2.03
" 10 " "	" "	1.80
" 25 " "	" "	1.70
" 50 " "	" "	1.50

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Dental Rubbers.

ALL the following Rubbers are made under our own personal supervision, and are thoroughly tested for strength, color, etc., before they are offered for sale. The materials of which they are composed are of the best and purest that can be obtained, and are quite free from everything which can injuriously affect the gums or general health of the wearer.

FOR COATING.

	COLOR.		
Improved Pink, Shade No. 1	Deep pink	per ℔.	$7 50
" " " No. 2	Pale "		
New Pink	Deep "	"	6 00
No. 1x	" "	"	6 00
No. 1	Pale "	"	6 00
No. 2x	Deep "	"	5 00
N.V.	" "	"	6 00

The time recommended for vulcanizing each kind is 75 minutes.

FOR BASE.

	COLOR.		
S.P.	Deep pink	per ℔.	$4 00
White, for Side Blocks, etc.	Bone color	"	4 00
Child's G.	Bright red	"	4 00
A. E. Elastic	Dark brown	"	4 00
W. Elastic	" "	"	4 00
Whalebone, No. 1	" "	"	4 00
" No. 2	Light "	"	3 50
Solid Base	Pink "	"	3 50
Flexible Base	Light "	"	3 50
Dark Red	——	"	3 50
Dark Elastic	Horn color	"	3 50
Red	——	"	3 00
Orange	——	"	3 00
Black	Horn color	"	3 00
Dark Brown	——	"	3 00
Brown	——	"	3 00
Improved Black	Jet Black	"	3 00

The time recommended for vulcanizing each kind is 75 minutes, at a temperature of 315° Fahrenheit.

SPECIAL—FOR TENDER GUMS, ETC.

	Degrees Fahrenheit.	Time H.	Time M.		
Soft Pink, for lining Palates	310	1	15	per ℔.	$6 00
Soft Dark Red " "	310	1	15	"	3 50
Vela, for making Artificial Palates	270	6	00	"	6 00

All the above Rubbers are supplied in ½-℔. Boxes.

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ESTABLISHED OVER 70 YEARS.

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Celebrated Porcelain Teeth.

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STRENGTH AND BEAUTY—They are unequalled.
TEXTURE AND BLENDING—Cannot be excelled.
DENSITY OF MATERIAL—Superior to all others.
GRINDING—They can be ground and repolished, a feature not possessed by any other *American Teeth.*
PLATINUM PINS—The pins used in my teeth have *two* distinct heads, are much larger than in any other make, thus giving them greater strength.

Below find Prices. Sample Cards mailed on application.

RETAIL PRICES.

	Each.	$10 Lot.	$25 Lot.	$50 Lot.	$100 Lot.
Gum Teeth,	**.12½**	**.12**	**.11½**	**.11**	**.10**
Plain Teeth,	**.11**	**.10½**	**.10**	**.09½**	**.08½**

GIDEON SIBLEY,
DENTAL DEPOT,
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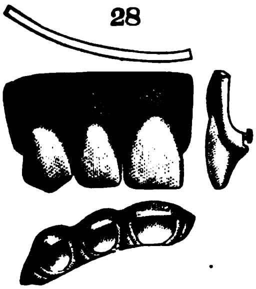
GIDEON SIBLEY'S IMPROVED TEETH

28



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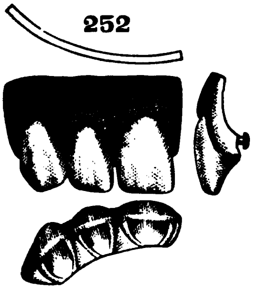

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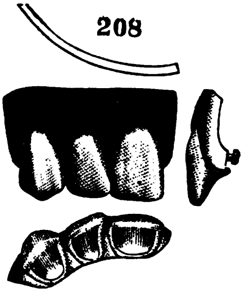

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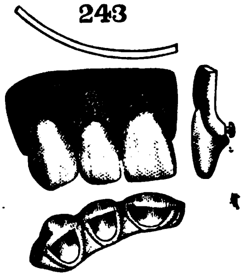

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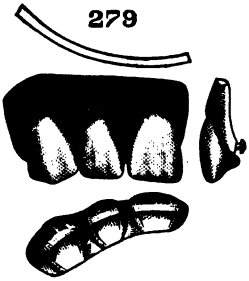

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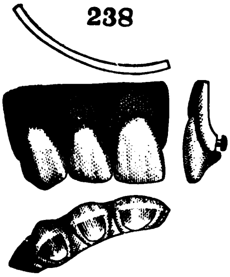

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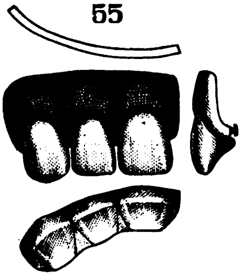

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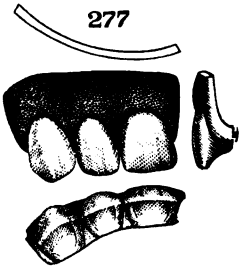

GIDEON SIBLEY,

Filbert Street, Philadelphia.

GIDEON SIBLEY'S IMPROVED TEETH

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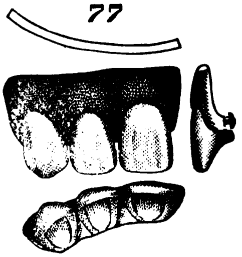

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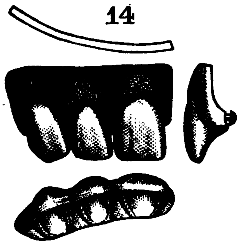

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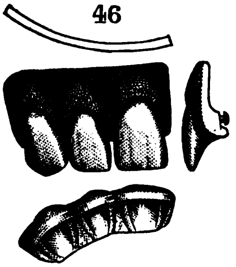

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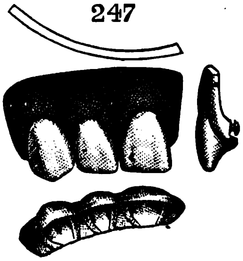

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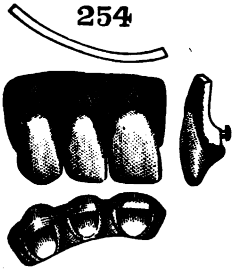

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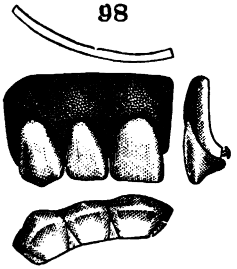

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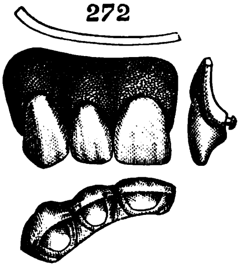

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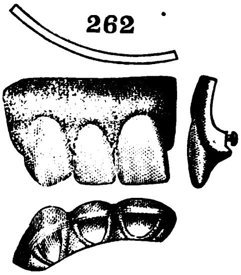

GIDEON SIBLEY,
Filbert Street, Philadelphia.

GIDEON SIBLEY'S IMPROVED TEETH

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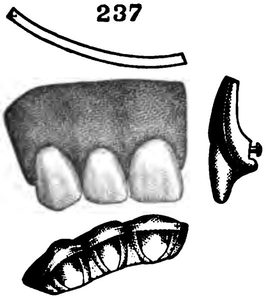

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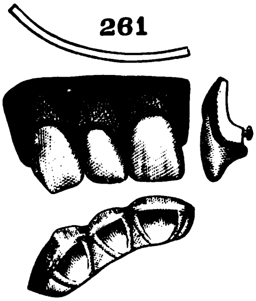

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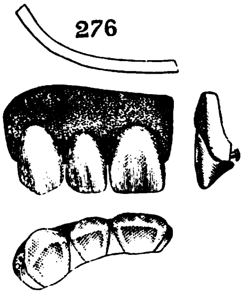

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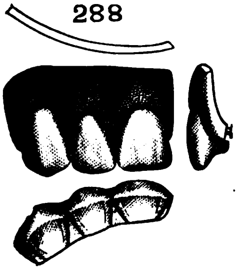

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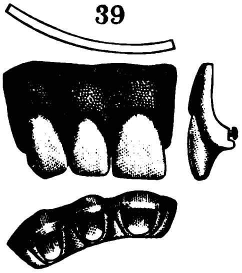

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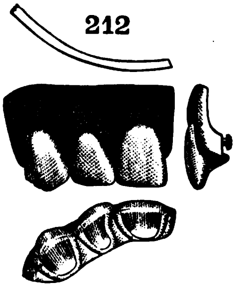

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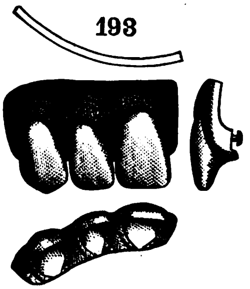

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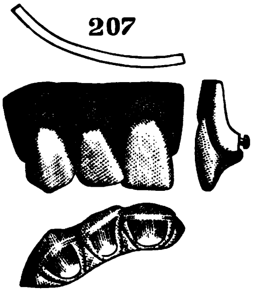

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Instruments *formed*, *tempered* and *finished*, as our productions are, cannot fail to give satisfaction.

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We heartily recommend the work, however, for it is better sometimes to be even too brief than too diffuse; and then it is such a novelty. We would heartily recommend Dr. Haskell's style to some of our friends."—*The Western Dental Journal.*

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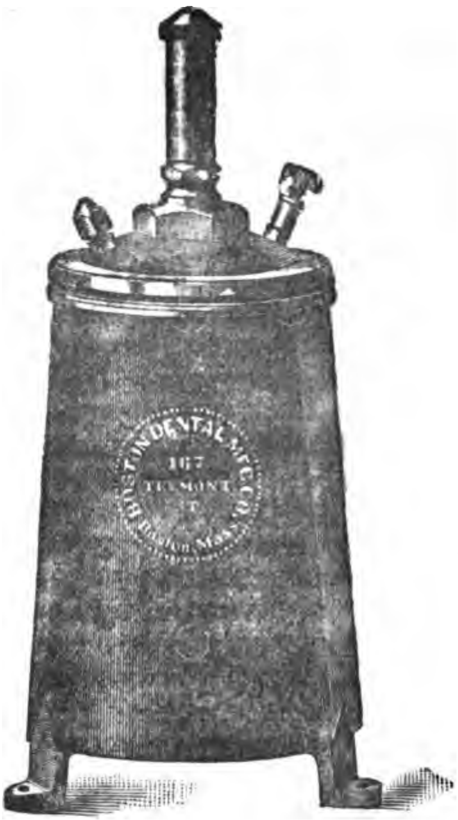

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The sacking is moulded instead of being cut in strips, and will last for years without being renewed. The cover can be screwed steam tight without the use of a wrench, the same being necessary only to open after being heated. The small quantity of water used (one gill) produces vulcanizing by steam, instead of water, thus producing better results.

The bed-plate jacket which is screwed to the bench, allows an easy and ready method of handling.

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This press is designed to close the flask with a uniform pressure, in the Vulcanizer when the rubber melts, at about 250 degrees Fahr.

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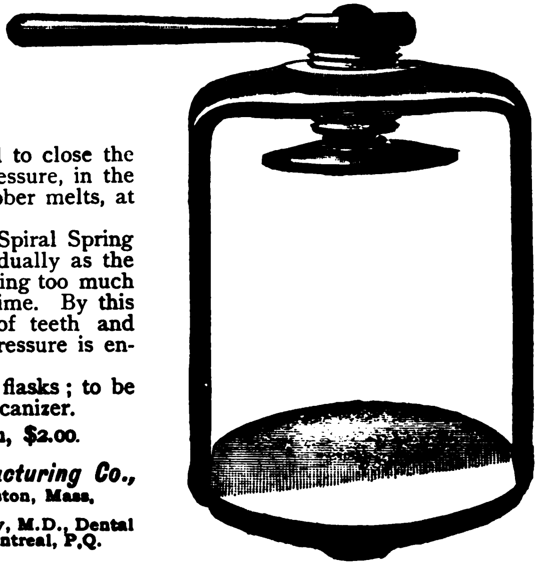

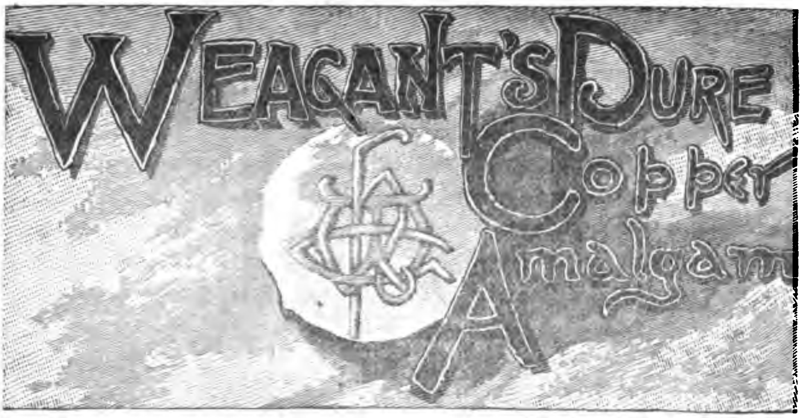

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It requires **no washing,** will set in from **five to fifteen minutes,** and possesses, to a remarkable degree, that **fine-grained plasticity** so desirable in Amalgam.

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WILLIAM BEAM, A.M., Demonstrator of Chemistry.
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A. H. SIBLEY, D.D.S., Demonstrator of Operative Dentistry.
FREDERICK R. BRUNET, D.D.S., Demonstrator of Prosthetic Dentistry.
I. V. MERSHON, D.D.S., Demonstrator of Operatic Dentistry.

CLINICAL INSTRUCTORS.

Dr. F. M. DIXON,
Dr. J. N. FARRAR,
Dr. W. G. A. BONWILL,
Dr. A. L. NORTHROP,
Dr. C. PALMER,
Dr. R. H. SHOEMAKER,
Dr. CHAS. F. BONSALL,
Dr. C. S. STOCKTON,
Dr. T. F. CHUPEIN,
Dr. W. H. TRUEMAN,
Dr. J. HAYHURST,
Dr. J. G. TEMPLETON,
Dr. W. R. MILLARD,
Dr. JOHN B. WOOD,
Dr. C. E. FRANCIS,
Dr. E. C. BAXTER,
Dr. A. H. BROCKWAY,
Dr. A. B. ABELL,
Dr. R. HOLLENBACK.

This College has accepted the requirements of the National Association of Dental Faculties with regard to admission and graduation of students. (See Announcement for 1889-90, which can be procured from the Dean.)

THE SPRING AND FALL SESSIONS.

THE SPRING COURSE commences on the second Monday in March and continues until the first of July. Fee, $50, which will be credited upon the fee for the regular session.

THE FALL COURSE will commence on Monday, September 8, and continue until the first of October, and will be free to those who matriculate for the regular session.

Attendance upon the Spring and Fall Courses will be deemed equivalent to the term of pupilage under a private preceptor.

THE REGULAR SESSION.

Will commence on Wednesday, October 1, and continue until the first of March ensuing. Twenty lectures will be delivered each week on the various branches taught.

CLINICAL PRACTICE.

Lecture hours excepted, general clinical practice is available for the student continuously through the day. Competent instructors are always present.

GRADUATION IN MEDICINE.

By an arrangement with Jefferson Medical College, such students as may desire to do so can, if found qualified, obtain the two degrees, in Dentistry and Medicine, in three years. Students desiring to graduate in medicine are required to notify the Dean of their intention at the beginning of their second course.

FEES.

Matriculation (paid but once)	$5 00
For the Course (Demonstrator's Ticket included)	100 00
Dissecting Fee	10 00
Diploma Fee	30 00

Board can be obtained at from $4.00 to $6.00 per week.

The Instruments and Tools required can be procured for from $35.00 to $45.00. This sum does not include the price of Dental engine.

For further information, address

C. N. PEIRCE, D.D.S., Dean, 1415 Walnut St., Philadelphia.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
CHARLES S. ESSIG, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy.
EDWIN T. DARBY, M.D., D.D.S., Professor of Operative Dentistry and Dental Histology.
JAMES TRUMAN, D.D.S., Professor of Dental Pathology, Therapeutics and Materia Medica, —SECRETARY.
JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.
THEODORE G. WORMLEY, M.D., LL.D., Professor of Chemistry.
EDWARD T. REICHERT, M.D., Professor of Physiology.
ROBERT HUEY, D.D.S., Lecturer on Operative Dentistry.
EDWARD C. KIRK, D.D.S., Lecturer on Operative Dentistry.

CLINICAL INSTRUCTORS.

DR. C. S. BECK,
DR. W. R. MILLARD,
DR. H. C. REGISTER,
DR. GEO. W. KLUMP,
DR. R. R. UNDERWOOD,
DR. I. F. WARDWELL,
DR. H. C. LONGNECKER.
DR. W. G. A. BONWILL,
DR. E. H. NEALL,
DR. J. A. WOODWARD.

DEMONSTRATORS.

WM. DIEHL, D.D.S., Demonstrator of Operative Dentistry.
J. JUDSON EDWARDS, Demonstrator of Mechanical Dentistry.
GEORGE C. MILLIKEN, D.D.S., Assistant Demonstrator of Operative Dentistry.
JAMES E. LODER, D.D.S., Assistant Demonstrator of Operative Dentistry.
HARRY B. McFADDEN, Assistant Demonstrator of Mechanical Dentistry.
AMBLER TEES, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.
JOSEPH W. WHITE, D.D.S., Assistant Demonstrator of Operative Dentistry.
J. EDWARD DUNWOODY, D.D.S., Demonstrator of Operative Dentistry.
R. HAMILL D. SWING, D.D.S., Assistant Demonstrator of Mechanical Dentistry.
FREDERICK AMEND, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.
JOHN MARSHALL, M.D., NAT. Sc.D., Demonstrator of Practical Chemistry.
JOHN B. BEAVER, M.D., Demonstrator of Anatomy.
MILTON N. KEIM, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.
HORACE McCANNA, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

SESSIONS.

The *Winter Session*, 1889-90 begins October 1st, 1889, and ends on May 1st, 1890.

The *Spring Session*, 1890, begins on May 2nd and ends the last of June. The work of this session is entirely practical; no lectures are delivered.

EXAMINATIONS.

At the close of the first year examinations in Chemistry and Materia Medica are held, which, if the student fails to pass, a second examination is afforded at the beginning of the next winter session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty will be admitted to the graduation class upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of Practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

EXPENSES—WINTER TERM.

Matriculation fee, $5; Tuition fee, first year, $100; second year, $100. Fee for Dissection, $10; Graduation fee, $30. For each additional year, $100.

Further information may be obtained from

JAMES TRUMAN, Secretary,
3249 Chestnut Street, Philadelphia, Pa.

The Baltimore College of Dental Surgery.

Chartered by the Legislature of Maryland in 1839.

The Oldest Dental College in the World.

FACULTY.

RICHARD B. WINDER, M.D., D.D.S., Professor of Dental Surgery and Operative Dentistry.
M. WHILLDIN FOSTER, M.D., D.L.S., Professor of Therapeutics and Pathology.
WM. B. FINNEY, D.D.S., Lecturer on Dental Mechanism and Metallurgy.
B. HOLLY SMITH. M.D., D.D.S., Lecturer on Special Anatomy and Dental Materia Medica.
THOMAS S. LATIMER, M.D., Professor of Physiology.
JAMES E. LINDSAY, M.D., Professor of Chemistry.
CHARLES F. BEVAN, M.D., Professor of Anatomy.
OSCAR J. COSKERY, M.D., Clinical Professor of Oral Surgery.
RICHARD GUNDRY, M.D., Professor of Materia Medica.

CLINICAL INSTRUCTORS.

Corydon Palmer, D.D.S.	Ohio.	**J. Hall Moore, M.D.**	Va.
E. Parmly Brown, D.D.S.	N.Y.	**John Allen, D.C.s.**	N.Y.
A. L. Northrop, D.D.S.	N.Y.	**R. B. Donaldson, D.D.S.**	D.C.
Chas. R. Butler, D.D.S.	Ohio.	**John Meyer, D.D.S.**	N.Y.
E. L. Hunter, D.D.S.	N.C.	**H. A. Parr, D.D.S.**	N.Y.
W. W. Walker, D.D.S.	N.Y.	**J. Emory Scott, D.D.S.**	Md.
T. S. Water, D.D.S.	Md.	**E. R. Rust, D.D.S.**	D.C.
David Genèse, D.D.S.	Md.	**C. L. Alexander, D.D.S.**	N.C.

DEMONSTRATORS.

R. B. Winder, Jr., Phar.G., D.D.S., Demonstrator of Operative Dentistry.
W. G. Foster, L.D.S. Demonstrator of Mechanical Dentistry.

ASSISTANT DEMONSTRATORS.

George E. Hardy, D.D.S. **J. W. Smith, D.D.S.** **J. E. Orrison, D.D.S.**
W. W. Dumbracco, D.D.S. **G. Marshall Smith, D.D.S.** **C. S. Seibold, D.D.S.**
J. W. Chambers, M.D., Demonstrator of Anatomy.
J. H. Branham, M.D., Assistant Demonstrator of Anatomy.

The Baltimore College of Dental Surgery, the first and for many years the only Dental School offers facilities for the study of Dentistry proper, such as age and experience only can give. Its immense *museum*, complete apparatus, large and well-arranged building, and carefully-studied *curriculum* give to its students great advantages and opportunities, both theoretical and practical, while its age gives its Diploma a dignity far out-ranking all other Colleges—a diploma honorably represented in all civilized countries, and held by the most distinguished members of the Dental Profession.

The fact that Dentistry must be *practically taught* is fully recognized, the *College Infirmary*, a most complete, large, and handsome *Hall*, being daily filled with clean and respectable patients, of a class nearly equal to those of the average dentist. *This Infirmary is open all the year*, students paying an entrance fee which is deducted from those of the regular succeeding course.

The session begins October 1, closing in March. A large corps of Demonstrators, always present, put in actual practice the teachings of all lectures on Dentistry—leaving nothing undemonstrated. *All methods are freely taught*, all appliances and apparatus used; the making of instruments and the most elaborate gold and continuous-gum work, and all the cases arising in ordinary practice, with many which are rarely seen, carefully demonstrated.

The College has formed an alliance with the College of Physicians and Surgeons, by which its students are privileged to attend all lectures and clinics. The patients of this medical school numbered last year over 40,000.

Graduates of the Baltimore College of Dental Surgery are required to attend but *one session* at the College of Physicians and Surgeons prior to presenting themselves as candidates for the degree of M.D. (See Catalogue.) In accordance with the resolution adopted by the National Association of Dental Faculties in the City of New York on the 4th of August, 1884, and which goes into effect for the session of 1885-86, the qualifications for entering the Junior Class are a preliminary examination in the ordinary English branches.

Terms of Graduation.—Attendance on two Winter courses of lectures in this College, as equivalent to one of these we accept *one course* in any reputable Dental College. *Graduates in Medicine* who have attended one Winter Course in this College, and have passed one year, inclusive of the Winter Course, in the practical work of the Infirmary and Laboratory, will be permitted to present themselves for graduation.

Beneficiary Students.—Each State Dental Society is privileged to send one Beneficiary Student to this College at one-half the regular tuition fees. This has been for some years an established feature of this College.

Fees.—Matriculation (paid once only), $5. Tuition fees, $100. Diploma fee, $30. Dissecting fee, $10.

Students corresponding with the Dean will please be careful to give full address, and direct their letters to

PROF. R. B. WINDER, Dean,
No. 716 Park Avenue, Baltimore, Md.

PHILADELPHIA DENTAL COLLEGE

—AND—

HOSPITAL OF ORAL SURGERY,

18th AND CHERRY STREETS.

ANNOUNCEMENT, SESSION 1888-89.

During the last year the college has been removed to Cherry, above 17th St., with a view to enlarged accommodation, made necessary by a constantly increasing class. In addition to conveniences already possessed, which are certainly not surpassed, if equalled, by any dental college, new lecture hall, general laboratories, dissecting rooms, etc., are now in process of erection, the cost of which is to be over seventy-five thousand dollars.

The Regular Winter Course commences October 1, and closes on the last day of February ensuing. A preliminary Fall course, free to students of Winter term, begins September 15.

The Dispensary and Laboratory are open all the year, except during the summer vacation. Instruction in *Practical Dentistry* has ever been a prominent feature of the institution, under the supervision of the Professor of Clinical Dentistry, who, aided by competent Demonstrators, will give special attention to the interests of students. The Dispensary consists of large, well-lighted rooms, furnished with comfortable operating chairs, tables and all conveniences. As an excess of patients is in attendance at the clinics, the opportunities here presented for acquiring a practical knowledge of dentistry are ample and complete. The new laboratory is the largest of its kind in the country.

A clinic in *Oral Surgery* is held every Saturday at 12 M.

Graduation.—Two years' study, including attendance upon two regular winter Courses of Lectures and satisfactory examinations in theory and practice are required for graduation. Attendance on one regular winter course in any recognized Dental College will be accepted as an equivalent for one course. Graduates in medicine are eligible for graduation in dentistry after one year's attendance on lectures and clinical service.

Fees.—Tickets, including the Demonstrators', $100; Matriculation, inclusive of Syllabi for home study (paid but once), $5; Diploma, $30. Board, $4 to $6 per week.

Special Notice.—Commencing with the present session, 1888-9, the usual preliminaries for the degree of the College will be so divided as to enable the student to take his examination on Applied Anatomy, Chemistry, and Mechanical Dentistry at the end of the first year, and to complete them at the end of the second on the branches of Physiology, Dental Pathology and Therapeutics, and Operative Dentistry.

ROSTER OF LECTURES.

PRACTICAL DENTAL CLASSES, DAILY FROM 6 A.M., TO 3 P.M.

MONDAY,	3 P.M.—FLAGG,	4 P.M.—STELLWAGEN,	5 P.M.—HOWELL.
TUESDAY,	3 " FLAGG,	4 " STELLWAGEN,	5 " GUILFORD.
WEDNESDAY,	3 " CLINIC,	4 " HOWELL,	5 " GARRETSON.
THURSDAY,	3 " FLAGG,	4 " STELLWAGEN,	5 " GUILFORD.
FRIDAY,	3 " DORR,	4 " HOWELL,	5 " GARRETSON.
SATURDAY,	8 A.M.—GUILFORD; 12 M.—GARRETSON, SURGICAL CLINIC.		
SATURDAY,	3 P.M.—OPERATIVE AND MECHANICAL CLINICS BY CLINICAL INSTRUCTORS.		

FACULTY.

HENRY MORTON, A.M., Ph.D., Emeritus Professor of Chemistry.
O. A. KINGSBURY, M.D., D.D.S., Emeritus Professor of Dental Histology and Operative Dentistry.

S. A. GUILFORD, D.D.S., Ph.D., Professor of Operative and Prosthetic Dentistry.
J. FOSTER FLAGG, D.D.S., Professor of Dental Pathology and Therapeutics.
HENRY I. DORR, M.D., D.D.S. Professor of Practice of Dentistry, Anæsthetics and Anæsthesia.
S. B. HOWELL, M.D., D.D.S. Professor of Chemistry and Materia Medica.
THOMAS C. STELLWAGEN, M.D., D.D.S., Professor of Physiology.
JAMES E. GARRETSON, M.D., D.D.S., Professor of Anatomy and Surgery. Surgeon to the Oral Clinic.

M. H. CRYER, M.D., D.D.S., Chief Assistant of Oral Surgical Clinic.
H. E. BELDEN. D.D.S., Demonstrator of Prosthetic Dentistry.

F. J. LANE, D.D.S.,
Demonstrator of Clinical Dentistry.

I. GREENBAUM, D.D.S.,
Demonstrator of Chemistry and Materia Medica.

HENRY C. BOENNING, M.D.,
Demonstrator of Anatomy.

For announcements containing particulars address

Dr. JAMES E. GARRETSON, Dean of the Faculty,
1537 Chestnut Street, Phila., Pa.

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Extract

From the General Report of the Judges on Awards of Group XXIV.

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